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# USSR Report

ENERGY

No. 102



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2 June 1982

## USSR REPORT

## ENERGY

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## ENERGY CONSERVATION

### ENERGY INSPECTION DIRECTOR DISCUSSES CONSERVATION MEASURES

Baku BAKINSKIY RABOCHIY in Russian 16 Feb 82 p 2

[Article by R. Abasov, director of "Energonadzor," "Azglavenergo": "Strict Accounting for Energy "]

[Text] The November (1981) CPSU Central Committee Plenum advanced the development and strengthening of the fuel and energy complex as the pivotal tasks of the country's national economy. Their fulfillment assumes not only the inclusion of new types of energy into production, but also the broad introduction of progressive and less energy-intensive technology and equipment, and the efficient use of the available resources. The Azerbaijan Communist Party Central Committee Plenum which took place in December 1981 aimed the workers of the republic industry at strengthening the regime of heat and electricity conservation. The director of "Energonadzor" R. Abasov discusses certain aspects of this work in the published article.

The republic council of ministers and the Azerbaijan trade union council recently approved the new conditions for competition among the industry collectives for conservation of energy resources. It goes without saying that this has become a considerable stimulus to strengthening the conservation regime. The frontiers outlined in the beginning of the five-year plan were successfully covered to a great deal because of the increased competition in the most important sector of the national economy. I recall that it was planned to reach conservation of about 190 million kilowatt-hours of electricity and 300,000 gigacalories of heat because of a set of measures in 1981. The collectives of the republic industry were able to find additional reserves of conservation. As a result, in the first year of the five-year plan they saved 220,000 kilowatt-hours of electricity and 500,000 gigacalories of heat.

In the leading collectives of industry, the regime of economy has been strengthened on a precise organizational basis. This also predetermined the high level of economy of energy resources in the oil and gas extracting administration "Ordzhonikidzeneft" and imeni N. Narimanov, the Sumgait production association "Organicheskiy sintez," at the Baku plants of household air conditioners, the oil refinery imeni 22nd Party Congress and a number of other enterprises.

We should dwell in more detail on the experience of the best workers in energy resource economy. Last year, the association "Organicheskiy sintez" conserved 18.408 million kilowatt-hours of electricity and 20,000 gigacalories of heat. An important role in the measures taken by the chemists was given to improving the operating regimes of the compressors at the cooling stations, air coolers and fans in the circulating water supply system. This yielded the greatest conservation of electricity. Striving to reduce the heat expenditures, the association collective focused especial attention on the use of steam. At a number of sections, it was replaced by steam-condensate mixture or instead of it, a low-potential heat of condensate was used. At the leading industries, divinyl, benzene and others, 10-atmosphere steam is now used instead of 16-atmosphere.

Less energy-intensive methods of extraction are being successively introduced into the oil and gas extracting administration "Ordzhonikidzeneft'." Electric supply of the shops is being successfully reconstructed with transfer of the circuits to 6 kilovolts. All of this was influential in predetermining that the administration collective would successfully cover the established norms for electricity conservation.

The commissions for promoting conservation of energy resources have successfully operated at all the enterprises we have named. Inspections of conservation, surprise inspections and checks are regularly made with the participation of the people's inspectors and members of the "Komsomol projector." Instances of wastefulness and an uneconomical attitude towards energy resources are discussed at the party and worker meetings, and measures are rapidly taken to eliminate their consequences.

At the same time it should be admitted that strict observance of the electricity and heat conservation regime has not yet become the norm in the work of a number of enterprises. Their overconsumption is systematically permitted at the Baku tire plant, the Sumgait association "Khimprom," the Azerbaijan pipe rolling plant, the Dzharlinskiy administration of drilling operations and certain others.

Miscalculations in the conservation regime by the tire workers in the first year of the five-year plan was expressed as 3.434 million kilowatt-hours of electricity. The basic reason for this was malfunctions in the production processes. In order to eliminate their consequences the tire workers had to reprocess tons of rubber which naturally entailed additional consumptions of energy resources not stipulated by the norms.

At the Azerbaijan pipe rolling plant, the basic reasons for weakening in the energy resource conservation regime were both failures to fulfill the assignments for output of products and insufficient use of heat generated by the recovery boilers. As a result, 1,008 kilowatt-hours of electricity and 2,886 gigacalories of heat were overconsumed. Last year, the Dzharlinskiy administration of drilling operations overconsumed 3.002 million kilowatt-hours of electricity. To a great deal this is a consequence of frequent accidents and idle time.

In making their surveys and checks, the workers of "Energonadzor" often encounter a surprising picture. Conservation of energy resources has been attained according to the reports of the enterprises, but in fact it has not. The secret here is simple. During the year, the enterprises use exaggerated consumption norms, the leadership is happier, and then, without intending, they compile the accounts on their basis. This "operation" is carried out from quarter to quarter by the Baku gypsum plant, and the Stepanakert furniture plant. Those enterprises who have conservation of energy resources only in the reports generally do not have plans for organizational and technical measures which should be the basis for strengthening the conservation regime. This has been noted at the fish kombinat imeni Kirov for heat conservation, and in the association "Kaspryba" in conservation of electricity. An especially serious situation has developed in the republic Ministry of Timber, Pulp and Paper, and Wood Processing Industry. There is no justification for the exaggerated conservation of energy resources which is shown in the accounts of the Stepanakert, but also the Kirovabad and the second Baku furniture plants.

During the surprise inspections made by "Energonadzor," it was established that a number of enterprises are permitting instances of poor management in relation to electricity and heat. Here are certain examples. Annually over 300,000 kilowatt-hours of electricity is spent in vain at three plants of the all-union production association "Soyuzneftemash" alone, the machine construction plants imeni Lenin, imeni Sardarov and the steel casting. The reasons for this situation are leaks of compressed air, idling of equipment, aimless consumption of electricity during the day and the use of homemade electric heaters. A similar situation can be seen at the oil and gas extraction administration imeni 26 Baku Commissars. Instances of wastefulness of electricity have been noted at the repair-mechanical plant imeni 26 Baku Commissars and imeni Azizbekov, artificial leather and sewing materials, and in the Baku tannery association. Large leaks of steam and losses of heat as a consequence of disorders in the heat insulation are characteristic for the Baku oil refinery imeni Karayev.

Consequently the question can be raised: what are the positions and role of "Energonadzor"? We make surprise inspections and checks to reveal wasteful and uneconomical attitudes towards energy resources. Last year 624 of them were organized, 774 acts were made against individuals guilty of violations. Electric and production units with total output of over 1,200 kilowatts which were in an unsatisfactory technical condition were turned off and sealed. Materials on violations of the conservation regime are sent to the agencies of people's control and the procurator's office.

It goes without saying that all of this bears a perceptible benefit. But even more should be done in order to increase the level of our work, primarily to prevent an uneconomical attitude towards energy resources. It should be admitted that we are performing purposeful activities mainly only at the Baku and Sumgait enterprises. Control over the efficient use of energy resources in the cities and regions of the republic on our side is still very weak and not sufficiently effective. It is also impermissible that only some of the enterprises located outside Baku participate in republic competition for energy resource conservation. None of them is included in the all-union or republic competitions for the best efficiency suggestions for conservation of electricity

and heat. A system of material stimulation to conserve electricity and heat is practically not active at the enterprises which are distant from the capital of Azerbaijan.

The second year of the five-year plan has advanced new tasks and new requirements for strengthening the energy resource conservation regime. Work to implement the pivotal task of the republic national economy must be developed deeper and broader.

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## ENERGY CONSERVATION

### OPERATION OF ALL-UNION CONSERVATION CAMPAIGN EXPLAINED

Moscow EKONOMICHESKAYA GAZETA in Russian No 1, Jan 82 p 15

[Article: "All-Union Public Inspection: Efficient Use of Raw Materials, Materials and Fuel and Energy Resources"]

[Text] The all-union central committee of the trade unions, Komsomol central committee, and USSR state committee for material and technical supply have adopted the decree "Order of Conducting an All-Union Public Inspection of the Efficient Use of Raw Materials, Materials and Fuel and Energy Resources in the 11th Five-Year Plan."

The purpose of the inspection is to broadly involve the workers in intensifying conservation and economy according to the decree of the CPSU Central Committee and the USSR Council of Ministers "Strengthening Work for Economy and Efficient Use of Raw Material, Fuel-Energy and Other Material Resources" in the 11th Five-Year Plan in the sectors of the national economy, associations, enterprises and organizations.

The order for conducting the all-union public inspection for efficient use of raw material, materials and fuel and energy resources and the staff of the central commission for supervision of the inspection in the 11th Five-Year Plan have been approved.

For annual encouragement of the collectives in the associations, enterprises, organizations, scientific institutions, kolkhozes and sovkhozes who have achieved high results in the all-union public inspection, 82 challenge Red Banners of the AUCCTU, Komsomol central committee, and USSR Gosplan have been instituted with diplomas and prizes for R 3,000 each, and 1,000 diplomas of the AUCCTU, Komsomol central committee and USSR Gosplan.

It has been recommended that the ministries, and departments jointly with the central committees of the trade unions establish monetary prizes to encourage the labor collectives who win the all-union public inspection, rewarded with diplomas

of the AUCCTU, Komsomol central committee and the USSR Gosplan. Other measures of moral and material incentive have been defined for the collectives and individual sections of the inspection who have achieved success in the efficient use of material-raw material and fuel-energy resources.

Below is a publication of the order of conducting the all-union public inspection for efficient use of raw material, materials and fuel and energy resources.

The purpose of the inspection is to broadly involve the workers in struggling for a persistent and successive implementation of the requirements of the 26th CPSU Congress "The Economy Must be Economical", successful fulfillment and over-fulfillment of the assignments set for the 11th Five-Year Plan for conservation of raw material, material and fuel and energy resources; increase the output of products necessary to the national economy for conserved raw material and materials; involvement in the economic turnover of secondary resources, industrial and general wastes, side products, local types of raw material and materials, above-plan reserves of commercial-material valuables; reduction in losses and wastes of metal, fuel, energy, materials and agricultural products during transporting, reprocessing and storage.

The operational leadership of the inspection is provided by:

Central commission for supervision of the all-union public inspection for efficient use of raw material, materials and fuel and energy resources approved by the AUCCTU, Komsomol central committee and the USSR Gosplan;

Sector inspection commissions created by the ministries and departments jointly with the central committees of the trade unions;

Republic, kray, oblast inspection commissions created by the councils of the trade union jointly with the komsomol committees and agencies of the USSR Gosplan;

Inspection commissions of the associations, enterprises, organizations, scientific institutions, kolkhozes, and sovkhoses created by the administration (kolkhoz board) jointly with the trade union committees and the Komsomol committees.

The sector inspection commissions, republic, kray, and oblast inspection commissions, inspection commissions of the associations, enterprises, organizations, scientific institutions, kolkhozes and sovkhoses include representatives of the trade union, Komsomol and economic agencies, organizations of the USSR Gosplan, people's control, Scientific and Technical Society, and All-Union Society of Inventors and Efficiency Experts, press, radio and television, sector services of technical and economic information, specialists, leading workers and innovators of production.

The central commission for supervision of the all-union public inspection for efficient use of raw material, materials and fuel and energy resources: coordinates the activity of the sector, republic, kray and oblast inspection commissions; monitors the inspection in the sectors, republics, krays and oblasts, the timely bringing by the ministries and departments to the labor collectives of assignments for conservation of material and fuel and energy resources, their fulfillment, inspection of the outdated and introduction of progressive consumption norms, realization of organizational and technical measures aimed at guaranteeing them; generalizes and disseminates the leading work experience of the sector, republic, kray, oblast inspection commissions for conducting of the inspections; promotes the organization of public control over the use of resources, mass checks for observance of the conservation regime, sector competitions for development and introduction of resource-conserving equipment and technology, improvement in the forms of moral and material stimulation of participants in the inspections; examines these questions at meetings and systematically informs the AUCCTU, Komsomol central committee and USSR Gosplan about the work done and measures taken to improve it; jointly with the USSR Gosplan generalizes the materials of the ministries, departments, central committees and trade union councils for the results of inspection, prepares a draft decree and presents it for examination to the AUCCTU, Komsomol central committee and USSR Gosplan.

For more rapid supervision of the activity of the sector section commissions of individual groups of ministries and departments, the central commission can create subcommissions.

The sector inspection commission, republic, kray and oblast inspection commissions: take measures to involve the collectives of the associations, enterprises, organizations, scientific institutions, kolkhozes and sovkhozes in active participation in the inspection; monitors the timely examination and introduction at the enterprises of suggestions of the workers aimed at sufficient use of resources; achieves timely bringing to the labor collective the assignments for conservation of raw materials, materials, fuel, and energy, and the use of secondary resources, review of the outdated and introduction of the technically substantiated consumption norms, implement public control over their fulfillment; all possible promotion of the adoption by the labor collectives and each worker of counterplans and commitments to increase the output of products from conserved resources, develop a movement for conservation and economy based on personal and collective accounts of economy, and creative plans; achieve universal development and use at the enterprises and organizations of statutes on rewarding the workers for conservation of specific types of resources; take measures to disseminate valuable initiatives of the worker collectives and innovators of production aimed at efficient use of raw materials, materials, fuel and energy and secondary resources, improvement in the publicity for the struggle for conservation and economy and the course of the inspection; participate in organizing competition to develop and introduce into production resource-conserving equipment and technology in the sectors, republics, krays, and oblasts, and mass public checks of the condition of work for the use of material resources, procurement of metal scrap and other types of secondary raw material conducted by the trade union, komsomol and economic agencies and organizations of the USSR Gosplan and agencies of

people's control; systematically hear at their meetings reports of the leaders of the trade unions, Komsomols and economic agencies of enterprises and organizations on questions of guaranteeing conservation and economy, conducting of an inspection, generalization of materials of the republic, kray, oblast committees and trade unions, production collectives for the results of the inspection and introduce their suggestions and necessary documents for examination at the meetings of the presidiums of the committee and trade union councils, committees of the Komsomol and agencies of the USSR Gosstnab, boards of the ministries and departments; the sector inspection commission, republic inspection commissions, kray and oblast inspection commissions in the RSFSR once every 6 months, no later than the 25th of the second month in the accountability period will present to the central commission information regarding the work done and data on the attained results according to the sample table of basic indicators of the ministries, departments and regions.

The inspection commissions of the associations, enterprises, organizations, scientific institutions, kolkhozes and sovkhozes: will carry out extensive organizational work to involve all the workers in active participation in the inspection, promote its broad publicity, improvement in the public agitation at each work site, organize a collection, accounting, and control of the examination and introduction of suggestions of the workers aimed at efficient use of material resources; achieve timely bringing of the assignments for economy to each work site, review the outdated and introduce technically substantiated norms of consumption, promote in all possible ways the adoption by the collectives, and workers of specific commitments for conservation, the opening of personal conservation accounts, organize constant control over their fulfillment; participate in developing and realizing plans for new equipment, organizational and technical measures aimed at efficient use of materials, fuel, energy and secondary resources; jointly with the trade unions, economic agencies, people's control, and "Komsomol projector" hold surprise inspections and checks on the condition of the accounting and control over the use of material valuables, reduction in their losses during transporting, reprocessing and storage; participate in the development of suggestions for prizes for conservation of resources, and take measures to acquaint all the workers with them; generalize and disseminate the work experience of the leading collectives, active participants and organizers of the inspection, and innovators of production, and prepare suggestions about their incentives; present these questions for discussion at the worker meetings, FZMK [factory-plant or local committee] meetings, Komsomol committees, PDPS [permanent production meeting], Scientific and Technical Society and all-union society of inventors and efficiency experts.

Rewarding of the production collectives who during the all-union public inspection have achieved high results with challenge red banners with diplomas and monetary prizes is done by the AUCCTU, Komsomol central committee and USSR Gosstnab, and diplomas of the AUCCTU, Komsomol central committee and USSR Gosstnab are given by central committees of the trade unions jointly with the ministries and departments according to the work results during the year for the successful fulfillment of the set assignments for conservation of material-raw material and fuel-energy resources, and their consumption norms, the basic indicators of production and economic activity and socialist commitments.

The production collectives present to the appropriate republic, kray and oblast committees of the trade unions before 10 February of the month following the accountability year, materials on the results of the all-union public inspection in three copies. After agreement with the councils of the trade unions, Komsomol central committee of the union republics, kraykoms, obkoms of the Komsomol and agencies of the USSR Gosplan and examination of the results at the trade union committee presidiums, before 20 February of the month following the accountability year send the materials on the inspection results and suggestions about rewarding the collectives to the sector inspection commissions. The sector inspection commissions generalize the incoming materials, prepare drafts for decrees regarding the results of the inspection and present them for joint examination to the boards of the ministries, departments and presidiums of the trade union central committees.

The production collectives of direct subordination send the materials on the results of the all-union public inspection to sector inspection commissions.

The ministries, departments and central committees of the trade unions present the materials from the results of inspection and suggestions on rewarding the collectives with challenge red banners of the AUCCTU, Komsomol central committee and USSR Gosplan with diplomas and monetary bonuses in two copies to the central commission before the 10th of March of the year following accountability year.

The following materials are presented to the sector commissions: decree of the presidium of the republic, kray, oblast committee of the trade union on the results of the inspection and suggestion of collectives for rewarding of the challenge red banners of the AUCCTU, Komsomol central committee and USSR Gosplan with diplomas and monetary prizes and diplomas of the AUCCTU, Komsomol central committee and USSR Gosplan; brief annotation regarding the work done during the inspection and information about the attained results according to the sample table (form is attached) for the basic indicators for the collectives presented for rewards and for the sector as a whole.

The central commission for supervision of the all-union public inspection for efficient use of raw materials, materials and fuel and energy resources receives: a joint decree of the board of the ministry, department and presidium of the trade union central committee about the results of the inspection and suggestions of the production collectives for rewarding with challenge red banners of the AUCCTU, Komsomol central committee and USSR Gosplan with diplomas and monetary prizes; materials about work done during the inspection and data regarding the attained results according to the sample table of basic indicators for the collectives presented for rewarding with banners, as well as a whole for the ministry and departments; list of collectives rewarded with diplomas of the AUCCTU, Komsomol central committee and USSR Gosplan.

Presentation of the challenge red banners of the AUCCTU, Komsomol central committee and USSR Gosplan and diplomas of the AUCCTU, Komsomol central committee and USSR Gosplan to the production collectives who are winners in the all-union public inspection is made in a triumphant occasion by members of the AUCCTU presidium, members of the office of the Komsomol central committee, the

Komsomol central committee of the union republics, kraykoms and obkoms of the Komsomol, members of the board of the USSR Gosplan, gosplans of the union republics, main territorial administrations of the USSR Gosplan, central commission for supervision of the all-union public inspection, members of the presidiums of the central committees and councils of the trade unions, and the members of the boards of the ministries and departments.

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## ENERGY CONSERVATION

### RURAL ELECTRICITY OVERCONSUMPTION CITED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 16 Feb 82 p 1

[Article by I. Yavorovskiy, special correspondent of KAZAKHSTANSKAYA PRAVDA: "Establish Strict Control"]

[Text] A ring was heard in the dispatcher room of the enterprise "Energonadzor" of the administration "Tselinenergo." The director of the plant of gas apparatus was calling. There was supplication, irritation and agitation in his voice at the same time: why, already for the n-th time, did the power engineers place the plant on starvation energy rations? It is easy to understand the leader of the enterprise in this situation. For him this is idling of the equipment and interruption of the plan, and deterioration in the quality of the product. The power engineers understood the director, but could not help him at all. At this time they were solving another problem, at which enterprises could they restrict the quantity of electricity consumed in order not to inflict especially perceptible damage on them.

The "Energonadzor" has had to resort to these measures in the last two months almost everyday. They not only have to introduce restrictions, but in general turn off some enterprises, kolkhozes and sovkhoses. It is understandable that no matter how they try they cannot avoid damages for production. You will now find few enterprises in the country that would not feel a shortage of electricity. There is no possibility of extinguishing it through internal resources of electricity. The Tselinograd TETs-2, the main producer of electricity, operates at full power, and the percentage of electricity generated by it is relatively small in the total energy balance of the oblast. The oblast receives its main energy from the Pavlodar-Ekibastuz energy complex, and it is not coping with its commitments.

It is understandable that strict observance of the energy consumption discipline, efficient use of electricity and an economical attitude towards it play an important role in this situation. Unfortunately, far from all the consumers understand this.

Especially critical situations are being created at the hours of maximum loads, in the morning and evening. It is precisely at these hours that the enterprises most often have to be switched to a shortened consumption regime. This inflicts a definite damage. Here is one of the examples. The ceramic combine

is assigned a regime for power of 4.4 megawatts. It operates on a power of 9.3 megawatts. Thus, the combine eases its position, but of course does this at the expense of others. There are many similar violators of the consumption discipline.

In order to escape from the situation without noticeable damage, many enterprises have developed so-called regulating measures for the maximum hours. Where this has been done with understanding, it is of benefit. It facilitates the work of the power engineers and permits the enterprise to operate without serious disruption in production and technological processes.

At the plant "Kazakhsele'mash," for example, a change in the worker's shifts meant that the repair services and storing shops operated in a time that was less strained for energy consumption. They strictly follow the time for turning on and turning off energy-intensive machines and equipment. The Murinsk administration of main water pipelines acted just as wisely. By efficient operation of the pumping stations, it became possible to turn off the most powerful pumps altogether during the periods of maximum load. Nevertheless, in the fourth quarter of last year, the administration overfulfilled all the production-technical plans and at the same time conserved 85,000 kilowatt-hours of electricity. At the Makinsk plant of piston rings imeni Lenin, during this same period 192,000 kilowatt-hours of electricity were conserved, or 3.1 percent of the plan for normed consumption. This is an excellent example of a prudent attitude towards electricity.

However, many enterprises have a formal attitude to the development of regulating measures, and it is precisely they who are the most frequent violators of the energy regime and permit electricity overconsumption. Among them are the Tselinograd porcelain plant, ceramic combine, bearing plant No 16, enterprises of control of grain products and many enterprises of the construction industry.

The Tselinograd meat combine has its own boiler house which is quite capable of satisfying the enterprise's needs for heat. However, they use a different method here. Without permission of the "Energonadzor" they have installed electric heating instruments which figuratively speaking burn thousands of rubles.

But the most undisciplined consumers of electricity are the sovkhoses and kolkhoses. Some of them seem to simply compete for wastefulness of energy resources. And if one takes into consideration that the village together with the communal-general service are responsible for almost half of the consuming of electricity in the oblast, then it is easy to imagine what this wastefulness costs.

The sovkhoses alone now use about 4,150 electric heating instruments, many of which are not especially needed, and others could painlessly be turned off for the period of maximum loads in the electric network.

"Energonadzor" jointly with the oblast agricultural administration and the oblast administration "Sel'khozenergo" provided the appropriate instructions

about connecting specific facilities literally for each farm. According to the calculation of the specialists, implementation of these regulating measures that reduce the load on the network by 70-80 megawatts. But unfortunately, this number is still only a calculation. Another figure makes a great impression, last year the kolkhozes and sovkhoses overconsumed 29 million kilowatt-hours of electricity. Saddest of all is the fact that a considerable part of it was consumed completely unnecessarily. Farms and animal husbandry cities are illuminated round-the-clock, and electric heating instruments operate without any monitoring. The sovkhos "Marinovskiy" was previously carried away with self-heating and the substation could not keep up and malfunctioned. In the sovkhos "Berstuatskiy" of the Vishnevskiy Rayon, there is a boiler house, nevertheless different instruments are still installed here, and mainly in nonproduction facilities with output of 380 kilowatts.

Unfortunately, there are too many of these examples. In the Vishnevskiy Rayon, the inspection "Energonadzor" found 262 heaters with output of 4,794 kilowatts (this is the output of such a large plant as "Kazakhsel'mash"). The sovkhos "Anarskiy" is especially diligent in this. Its director even refused to make an agreement with "Energonadzor" on the use of electricity. At the same time, according to the estimates of the specialists, it can be said that 60 percent of the power consumed by the sovkhoses is wasted in vain.

It is most surprising that no one takes any serious responsibility for this. In the same Vishnevskiy Rayon, the inspector of "Energonadzor" P. P. Shefer found 32 acts of illegal use of electricity in 4 months. Twenty-seven of them were sent to the administrative commission of the rayispolkom, and 5 to the committee of people's control. Only three were examined. The leaders who were responsible for electricity overconsumption were only warned. The level of requirements is somewhat higher in other regions. Apparently an opinion regarding the inexhaustibility of electricity has also become too entrenched in the administrative commissions. They do not have the proper exactingness in this respect in the service "Sel'khozenenergo."

Responsibility for overconsumption of electricity by the rural consumers is minimized even more because there as yet are no standards for its consumption for the production of agricultural products. In previous times, say 20 years ago, there possibly was not an acute need for them, but now when agriculture has been completely mechanized and electrified, and mainly through national electric networks, the need for such standards has undoubtedly appeared. This would simplify monitoring the consumption of electricity and would improve responsibility for its consumption.

9035

CSO: 1822/146

## ENERGY CONSERVATION

### ELECTRICITY CONSERVATION IN THE HOME CALLED FOR

Moscow PRAVDA in Russian 20 Jan 82 p 1

[Article by Vyacheslav Goncharov: "Light Beyond the Window"]

[Text] The Muscovite M. Shitikov focused attention on the following: the holiday had passed, but the lights on his street were still on. A clear waste of electricity! The editorial staff sent his letter to the ispolkom of the Moscow City Soviet. Measures were taken. The bright light outside his apartment window was turned off. The light engineering inspection "Mosgorsveta" was entrusted to strengthen control of timely turning off of the lights and the wasters were punished.

This is a seemingly trivial fact, for how much electricity was used for the same lights that burned after the holiday. This is the most insignificant amount as compared to our annual output. But do not make hasty conclusions. During the year, 5.7 billion kilowatt-hours are spent on lighting the streets and squares throughout the country. On holidays, the consumption of electricity doubles on the average. On the central streets and on popular walking areas it increases many times.

Of course we are not misers. On holidays let lights burn in all the large and small cities and villages. Let it bring happiness to the people and raise their spirits. Although, honestly speaking, measure is necessary even here. But when the holiday is over...we will cite a figure: one extra day of burning lights costs the state 20 million kilowatt-hours of energy. Production of this energy requires 6,600 T of conventional fuel, which in turn has to be extracted and delivered to the power plant.

This reminder is not at all accidental today. In certain cities New Year's lights burned the whole night long, and sometimes were not turned off even during the day. In some places these lights were only turned off recently. Is this economical? It is mandatory that this be stopped. The motto proclaimed at the 26th CPSU Congress: "The Economy Must be Economical" concerns all of us and requires from each a feeling of economy and personal responsibility for the general work.

But this does not mean, of course, that electricity should only be conserved on holidays. The communal-general sector hides a tremendous amount of unused

reserves. For example, which one of us has not forgotten to turn off the light in the bathroom, corridor or room? In certain families even television is watched with blinding lights. And how many lamps burn round-the-clock in the entrances of houses!

The central television conducted an interesting experiment. The television viewers were asked to turn off surplus lights in their apartments. Although far from all participated in it, the results were perceptible. The load on the network decreased by 600,000 kilowatts. If this regime was maintained for 2 hours in the evening, then 240 million kilowatt-hours could be saved during the year.

By the way we have already become accustomed to the fact that the television announcers advise us to turn down the television sound in the late evening so as not to disrupt the sleeping. Why do they not also advise us to turn off surplus lights in the apartments. This would be a good idea.

9035

CSO: 1822/146

## ENERGY CONSERVATION

### EDITORIAL STRESSES IMPORTANCE OF ELECTRICITY CONSERVATION IN KAZAKHSTAN

[Editorial Report] Alma-Ata SOTSIALISTIK QAZAQSTAN in Kazakh 14 January 1982 carries on page 1 a 1,100-word boldface editorial on the need to conserve as well as produce large amounts of electricity in Kazakhstan. The carrying out of decisions of the 26th Party Congress and the November 1981 Plenum of the CPSU CC requires the development of energy resources up to the level of present demand along with other sectors of the people's economy. This is because adequate and uniform production of electrical energy is often a key factor in fulfillment and overfulfillment of five year-plan tasks. Thus the party and the government are showing concern for a continual increase in the capacity of electrical generating facilities and their proper technical equipment.

The editorial reviews the current state of KaSSR electrical power with emphasis on new facilities and new transmission systems, noting that transmission of generated power is as important as generation itself. The Editorial ends with a plea for conservation, points up the enormous gains from even minimal savings for production processes and individual factories and stressing that conservation is a major foundation for raising material living standards.

9857

CSO: 1832/1095

## FUELS

### UKRAINIAN OFFICIAL URGES IMPROVEMENT IN COAL, METALLURGY INDUSTRIES

Kiev PRAVDA UKRAINY in Russian 20 Mar 82 p 3

[Article: "Use Reserves More Completely"]

[Text] Donetsk, 19 March (RATAU [Radio-Telegraph Agency of the Ukraine]). Donetsk workers are persistently implementing 26th CPSU Congress decisions. In the first year of the 11th Five-Year Plan they mined 84,000 tons of coal and produced 4,500 tons of cast iron, 30,000 tons of coke, 1.5 million linear meters of cloth, and many other industrial products above the plan. Important social questions are being solved in the city. Plans for the introduction of schools, kindergartens and housing have been carried out and the network of trading and domestic-services enterprises has been expanded.

The decisiveness of the workers of the miners' capital to greet the 60th anniversary of the forming of the USSR with new achievements was shown brightly at a meeting of B. V. Kachura--USSR Supreme Soviet Deputy, member of the Politburo of the Ukrainian Communist Party Central Committee and first secretary of the Donetskaya Oblast party committee--with voters of the Donetsk-Voroshilovskiy Electoral District.

The meetings participants expressed fervent approval and support for the activity of the CPSU Central Committee and its Politburo under Comrade L. I. Brezhnev on implementing the party's domestic and foreign policy.

In speaking before the voters, B. V. Kachura dwelt in detail on complicated questions of the economic and social development of Donetskaya Oblast and of Donetsk.

"For us now there is no matter more important," he said, "than the execution of five-year plan tasks. They are not simple or easy and will require much effort and great organizational and political work."

The speaker emphasized the necessity for a radical improvement in the work of the coal and metallurgical industries, more active use of the potential that exists in these branches and of their reserves and opportunities, and a rise in labor productivity. It is necessary to arrange for precise monitoring of the utilization effectiveness of machines and equipment, to pay constant attention to improving people's working conditions and their recreation, to promote socialist competition more actively, to widely propagandize the experience of advanced workers, and to deal strictly with carelessness and mismanagement.

The deputy informed the voters about progress in fulfilling the mandate given him.

11409

CSO: 1822/137

## FUELS

### ROLE OF SCIENCE, TECHNOLOGY IN REBUILDING KARAGANDA COAL MINES OUTLINED

Alma-Ata NARODNOYE KHOZYAYSTVO KAZAKHSTANA in Russian No 2, Feb 82 pp 47-52

[Article by P. Trukhin, director of the All-Union Scientific-Research and Design-Development Institute for Coal, Hero of Socialist Labor, USSR State Prize Winner and candidate of engineering sciences: "The Reequipping of Mines with Machinery Is the True Path to Raising Coal-Mining Effectiveness"]

[Text] The CPSU Central Committee and USSR Council of Ministers decree, "On Measures for Accelerating the Reequipping of Underground Mines of the USSR Ministry of Coal Industry with Machinery," manifested the party's and government's great concern for further successful development of the coal-mining industry and for improvement of Soviet miners' working conditions.

The broad program of scientific, technical and organizational measures that this most important document contained was aimed at raising substantially the operating effectiveness of coal enterprises by creating and introducing more progressive technology and means for mechanizing and automating the production processes of excavating coal seams over a broad range of mine-geology conditions and also at eliminating existing deficiencies in reequipping the branch's enterprises with machinery.

Successful realization of these major and responsible tasks requires a substantial rise in the share of progressive systems and industrial schemes and in the level of mechanization and automation of breakage-face, tunneling and transport operations, and a sharp reduction in the share of heavy manual labor at all echelons of mining production. Reequipping underground mines with machinery in the new era should result in high technical and economic indicators for coal mining, including the most important one of them all—labor productivity.

Many years of experience testify that the sole effective way to raise coal-mining effectiveness is unswerving growth in furnishing equipment to the enterprises.

V. I. Lenin considered coal the bread of industry and he attributed exceptionally great importance to questions of mechanizing coal mining. This example is bright testimony to that.

On 22 July 1921, V. I. Lenin proposed categorically to Glavugol' [Main Administration for the Coal Industry], whose specialists had expressed doubt as to the desirability of using cutting machines for excavating coal: "I ask you to take decisive measures to insure the most rapid purchase of cutting machinery abroad."\*

\*V. I. Lenin. Poln. sobr. soch. [Complete Collected Works], Vol 53, page 54.

These were the first steps on the road to technical progress in the country's coal industry. And the whole later path of glorious labor accomplishments has been marked by unswerving, intensive growth in the status of supplying the coal industry with increasingly effective models of mining machines and equipment that were created by domestic science and by the introduction of progressive technologies.

The reequipping of mines with machinery has been especially speeded up in the past 15-20 years, when, as a result of strengthening the ties of science with production, the projects of the industry's NII's [scientific-research institutes] and KB's [design bureaus] have become more concretely tied in with the needs and requirements of coal enterprises, which, in turn, are using the achievements of mining science increasingly widely in executing engineering measures.

This enabled a new task--that of providing for the contemplated growth in coal mining without increasing worker manning, that is, entirely through increases in labor productivity--to be posed and successfully solved during the Eighth Five-Year Plan (1966-1970).

A distinctive feature of coal-industry development during this period was the creation and wide industrial introduction at mines of breakage-face longwall-mining machines, thereby opening up for the industry a new era in the mechanization of underground coal mining. It should be noted that work on the mechanization of supports at breakage faces, just like the creation of coal cutter-loaders, which started in the Soviet Union back in the prewar years, determined similar developments abroad to a great extent. Original and improved designs of breakage-face equipment, including cutter-loaders and mechanized supports for roof layers, were created. The years of the Eighth and Ninth Five-Year Plans became for the coal industry a period of successful continuation of the work to concentrate and intensify production based upon the reequipping of organizations with machinery, as is clearly indicated by the operating experience of Karaganda Coal Basin coal enterprises, which occupy a leading place in the industry in level of basic technical and economic indicators.

The measures taken here prior to 1965 for reequipping mines with machinery permitted an appreciable increase in the mining of coal (from 24.7 million tons in 1960 to 29 million tons in 1965), but the rate of growth of labor productivity still was inadequate.

A basic policy of reequipping mines widely with machinery and of maximum concentration of production was adopted by amalgamating into associations two or three adjacent mines that were working seams of approximately identical depth. In so doing, the association of enterprises was not only administrative but also engineering and technical in nature, where mine operations and processes were correlated into a single operational and organizational system.

Simultaneously, reconstruction of the basin's coal enterprises began to receive earnest attention. Thus, while practically no substantial funds were spent for these purposes in 1960-1964, during the Ninth Five-Year Plan an average of more than 20 million rubles was expended annually for rebuilding.

Capital investment for mastering and maintaining the mines' capacity grew substantially. While this amount was 44.42 million rubles (or an average of 8.85 million rubles per year) in 1960-1964, in 1965 it rose to 54.61 million rubles and remained at a high level in later years.

The measures carried out for concentrating production enabled the enterprises' operating effectiveness to be raised appreciably. Thus, for the Underground Mines imeni Kostenko, imeni Gorbachev, Ashlyarikskaya, imeni 50 Let Oktyabrya, Sokurskaya, Dubovskaya and imeni V. I. Lenin, as a result of consolidation and reconstruction during 1968-1972 the amount of coal mined grew by 1.2 million tons per year, or 9.4 percent; annual workload per mine grew from 898,000 to 2.11 million tons, or 2.6-fold; daily workload per breakage face grew from 506 to 751 tons, or by 48.6 percent; labor productivity increased from 61.8 to 78.4 tons per month, or by 26.8 percent—all while prime operating costs per ton of coal were being reduced simultaneously by 2.9 percent.

The USSR Council of Ministers decree, "On Measures for Reequipping the Coal Industry with Machinery," which was published on 5 September 1968, defined new goals and basic directions for developing coal-mining machinery and technology. Successful realization of the tasks set by the government helped decisively in the substantial rise in the technical and economic indicators of the Karaganda Coal Basin miners' work.

During the Eighth and Ninth Five-Year Plans, for example, the number of active breakage faces with longwall mining machines rose from 38 to 105, or almost 3-fold; the level of integrated mechanization of coal mining increased from 19.1 to 73.7 percent (about 4-fold); and the amounts of development drifting performed by tunneling cutter-loaders rose from 60.7 kilometers to 328.6 kilometers, or more than 5-fold.

During the Ninth Five-Year Plan work on the integrated mechanization and automation of coal mining received special scope. For the industry as a whole, the share of mining from mine faces with integrated mechanization doubled, which in 1975 was 59.8 percent at gently sloping seams and 4.1 percent at steep seams. About a third of the length of all workings that required loading was made with the help of cutter-loaders.

And, as a consequence of this, the main qualitative result of coal-industry development was a growth in labor productivity—5.25 percent per year—that was higher than in any of the preceding five-year plans. Average monthly labor productivity per worker who mines coal in the branch as a whole reached 74.2 tons, and, in so doing, its rate of growth was 2.1-fold higher than in 1966-1970. Total labor productivity growth with the underground method exceeded 21 percent. The increase in coal mining for the branch as a whole, from 624.1 million to 701.3 million tons, was completely provided for by increased labor productivity—by 1.3-fold for the monthly average and by 1.4-fold for the shift—with a simultaneous reduction in the number of workers who mine coal by 112,000 people, or by 12.7 percent.

For the Karaganda Basin, the Ninth Five-Year Plan was a period of consummation of reequipping with machinery, concentration of the mining activity, and the achievement, on the basis thereof, of a labor-productivity level that was a record for domestic practice for the underground method—93.7 tons per month per worker who mines coal in 1976, versus 66.6 tons per month in 1970. Thus, the average annual rate for labor productivity growth was 6.5 percent for the basin (let us recall that this growth was obtained during the whole Seventh Five-Year Plan).

"The Main Directions for Development of the National Economy During 1976-1980," which was approved by the 25th CPSU Congress, called for accelerating the pace of growth in coal mining and a rise in labor productivity by 22-24 percent by the broad-scale improvement of equipment and technology, the execution of work to rebuild and modernize underground and strip mines, an acceleration of the development and mastery of the series production of longwall miners for mining coal at thin seams on gently sloping dips and steeply inclined seams, and an increase in the output of tunneling cutter-loaders and other underground-mine equipment.

In carrying out the tasks set by the party and the government, the industry's enterprises and laboring collectives provided for an increase of 250 million tons in total coal mined during the 10th Five-Year Plan. Mastery of the production and introduction of new, more progressive types of underground-mining equipment, such as, for example, the OKP-70 and 2MK-75 breakage-face longwall miners for gently sloping seams of greater thickness, the IANShch and AK-3 longwall miners for steep seams, 4PP-2 tunneling cutter-loaders with remote and programed control, and GPK's for excavating rocks of average hardness, and others, helped in this.

During the five-year plan, all this enabled the level of integrated mechanization, which had been completed in the Karaganda, Pechora and Moscow basins, to be raised from 58 to 67 percent; cutter-loader tunneling from 30 to 39 percent; underground-transport conveyerization from 80 to 92 percent at slanted workings and from 70 to 25 percent at horizontal workings; equipping with automation resources to 70 percent for narrow-front breakage-face cutter-loaders and to 15 percent for tunneling cutter-loaders; and the automation of stationary equipment on the surface to 85 percent.

At the same time, the rise in equipment level achieved during the five-year plan did not yield the increase in effectiveness of the industry's work that was called for by the five-year plan, as indicated by a reduction in labor productivity from 54 to 48.5 tons per month at underground mines. In the Karaganda Coal Basin this important indicator fell from 93.7 tons per month in 1976 to 81.3 tons per month in 1980.

The trend toward a reduction in labor productivity and in certain other basic indicators at the Karaganda Coal Basin's underground mines that was noted resulted from a number of factors, whose negative influence has deepened each year. Mainly there was a shortage of production capacity for mining and processing coal that had been caused by a lack of preparation of new horizons at existing mines and by a reduction in recent years of appropriations for developing coal enterprises, and there was an appreciable worsening of mine-geology conditions and mine-engineering conditions--an increase in depth of the coal seams being worked, a rise in the presence of gas in them, and a rise in the number of floors being excavated that have a tendency toward sudden outbursts, or that have roofs that are broken down with difficulty or that have disturbed wall rocks, where the effective use of existing mechanized longwall-mining machines is difficult, causing increased wear, breakdowns and major amounts of repair work. For example, in 1980 alone 23 million rubles' worth of repair work was done in the basin, more than 5,000 sections of mechanized supports alone having been repaired.

It should be noted that such high costs for overhauling longwall-mining machines are caused not only by the forced wide use of them under difficult conditions but also by the operation of a portion of the equipment far beyond the limits of its

amortized service life. A fourth of the longwall-mining machines now being used in the basin are subject to writeoff, that is, the equipment has become worn, has worked out its service life, and has become unreliable in operation. However, because of the limited allocation of funds for acquiring new longwall miners, the old, worn equipment continues to be operated with an extremely low yield, because of frequent breakdowns. Thus, for the last 2 years (1979-1980) the workload on ZOKP longwall-mining machines that were subject to writeoff was reduced at the Underground Mine imeni Kalinin by an average of 1,000 to 530 tons per day, at the Molodezhnaya Underground Mine from 1,200 to 800 tons per day. A similar situation exists at a number of underground mines with KM81, KM87 and other longwall-mining machines.

The effective use of breakage-face and tunneling equipment is hampered at times by the unsatisfactory condition of transport and ventilation workings, which is occasioned not only by intensified mining and aggravation of the requirements for upkeep but also by a shortage of metal for reinforcing the development passages. This circumstance often causes an out-of-commission status, which entails idle time for the breakage and tunneling faces.

The national economy's growing requirements for high-quality Karaganda coal sets before the basin's production workers and scientists urgent and imperative tasks related to an improvement of existing methods and the creation and wide introduction of new development methods, systems, operating schemes and means for the mechanization and automation of breakage-face and development operations, underground transport, coal preparation and other technological processes. Much has been done in all these areas. Full realization of the measures that have been worked out will allow the effect of the negative factors to be neutralized to a definite extent and a high technical and economic level of production to be maintained.

It should be noted that the integrated mechanization of breakage faces in the basin had already, by the end of the Ninth Five-Year Plan, embraced the whole rational area of application, having reached 73.6 percent in 1975. Nevertheless, during the 10th Five-Year Plan it rose to 94.4 percent--mainly through the working of seams lying in unfavorable mine-geology conditions, because of which it was required that existing equipment and ways and methods be modernized, or that new equipment, ways and methods be created, in order to increase coal-mining effectiveness and work safety.

Based on research conducted by the basin's scientists, in collaboration with production workers, many engineering innovations were developed and introduced that permitted coal-mining indicators to be improved, the quality of the coal to be raised, and operating losses of coal to be reduced.

The collective of the [Karaganda] All-Union Scientific-Research and Design-Development Coal Institute (KNIUI), the main directions of whose activity are the development and improvement of systems, operating schemes, and means for mechanizing and automating the excavation of coal seams of the Karaganda Basin and Central Asian fields, has made an appreciable contribution to development of the Karaganda Coal Basin and of the industry. The institute was designated the industry's prime institute for problems of creating and introducing progressive technology and equipment for working thick, gently sloping seams and individual mine supports for working seams more than 1.2 meters thick.

Following are the institute's greatest and most effective developments.

The institute has developed, jointly with a number of the industry's scientific organizations and the basin's production workers, a technology for excavating seams without leaving pillars near development workings. In 1978-1980, this technology was used at 160 mine breakage faces in 17 of the basin's underground mines. Sixty millions tons of coal were mined and operating losses for each excavated section were reduced by 8-10 percent by area, thanks to which a high economic benefit was achieved. Pillarfree technology is also being introduced in the country's other basins.

In order to expand the area of effective use of serially produced longwall mining machines where coal seam roofs are difficult to tear down, a method for controlling roofs with the pilot torpedoing method has been created. Its introduction into Karaganda and other basins has enabled longwall workloads to be increased 1.4-fold on the average and a substantial economic benefit to be obtained.

Progressive operating schemes for breakage-face and development work at coal seams with dip angles of up to 35 degrees, which are used widely at the industry's underground coal mines, have been developed.

For slicing thick, gently sloping seams, our institute has developed, jointly with the Institute for Mining Affairs imeni A. A. Skochinskiy and Giprouglemash [State Design-Development and Experimental Institute for Coal Machinebuilding], the KMV-130 longwall-mining machine, which operates along a lower layer, withdrawing coal from the layer above it. The indicated operations are conducted in accordance with a bilateral agreement on collaboration between USSR Minugleprom and the Coal Industry Administration Charbonnage de Frans (France). Acceptance tests of the longwall-miner prototype are to be held in 1982.

The technology and means for mechanizing the working of coal seams with hydraulic and pneumatic gobbing of the excavated space are undergoing industrial testing. In regard to thin seams, a highly productive technology for unmanned excavation, using the Tentek-2k mining installation, an experimental model of which has passed underground mine tests and showed positive results, is being created.

Operating schemes for development work at seams that are subject to sudden outbursts of coal and gas, which are included in the branch's illustrated manual, have been developed and are being used in the branch's underground mines.

With a view to greatly expanding the range of effective use of series-produced equipment, operating schemes have been developed for slant excavation work (up to 18 degrees), using LPK keps, which are produced serially and are being introduced widely at the basin's underground mines. In order that excavation at slight angles, of up to +25 degrees, may be mechanized, the UPU restraining and feeding mechanism has been developed. It is being produced by the RGShO plant and is being introduced into production.

The institute is also studying practical developments connected with improving operating schemes and equipment for mechanizing underground transport. Single-cableways of the DKL type and STG and UDLG on-the-ground installations, whose introduction is solving to a great extent the problem of mechanizing the delivery of people and auxiliary freight about section drifts, are being used widely at the basin's mines. The UDLG installation is also being used widely outside the Karaganda Coal Basin.

In order to deliver people and freight to slanted sectional drifts when working seams with pillars where there is a dip of up to 25 degrees, the 1KGD single-cableway for people and freight has been created, which has been recommended for series production in accordance with acceptance-test results.

Effective means for automating mining, tunneling, ventilation and degassing are being created. Thus, delivery mechanisms with automated thyristor DC drive developed by the institute will enable the productivity of breakage-face cutter-loaders to be increased 1.5-fold, thanks to the rise in reliability and maintainability.

With the participation of a number of industry prime organizations, equipment and a system for central control of underground-mine ventilation--ATMOS--have been developed, tested under underground conditions, and prepared for series production. It exercises centralized automated control of the mine atmosphere's basic parameters and responsive control over the distribution of air about the mine workings. Right now production of the equipment is being mastered by the industry's underground-mine automation plants, and, beginning in 1982, individual complexes of the ATMOS system are to be introduced into the industry as their series production is mastered.

Great attention is being paid to research aimed at raising coal quality. During the 10th Five-Year Plan, a number of developments for further improving operating processes and equipment for mechanizing the preparation of mined coal have been effected and introduced. Thus a set of organizational and technical measures and standard requirements for improving coal-preparation technology in order to sharply improve and stabilize the quality of coal concentrate for coking has been developed and realized in the Saran' Preparation Plant environment, as a result of which the plant's output was awarded the State Emblem of Quality. A major economic benefit was obtained.

Urgent developments were also carried out in the area of economic research, scientific and technical forecasting and other questions of mine operations, for protection of the earth and the environment.

The scientists' efforts are yielding positive results. During the 10th Five-Year Plan alone about 80 finished KNIUI developments were introduced with an economic benefit of more than 45 million rubles, comprising a yield on the order of 3.5 rubles per ruble of costs. More than 10 items that the institute created, or in whose creation it participated, were brought to full readiness for series production. During this same period the institute developed 17 technical tasks for the creation of new, progressive models of mine equipment that were approved by the ministry.

Much other work done by our institute's collective could also be named. But nevertheless, the scientists are still in great arrears to coal production work, since not by far are they helping fully to solve successfully urgent tasks for the industry's technical progress. And we accept, as a whole and completely, the party's and government's criticism of the industry's institutes that was sounded in the 23 September 1981 decree, "On Measures for Accelerating the Reequipping of USSR Ministry of Coal Industry Underground Mines with Machinery," which pointed out that the industry's scientific organizations have not provided modern solutions for the most important problems connected with developing coal fields where mine geology conditions are complicated. And, further, bearing in mind that successful NII and KB activity depends to a decisive extent upon the state of

organization and management of science at the industry level, the above-indicated decree proposed that Minugleprom [Ministry of Coal Industry] improve the supervision of the scientific-research and design-development institutes, raise the effectiveness of their work to speed up technical progress in the coal industry, and concentrate the institute's efforts on solving the most important problems of developing the industry, primarily by reducing manual and heavy physical labor.

We scientific workers are at times reproached, completely correctly, for taking too much time developing models of new equipment. Actually, the length of the so-called "life cycle" of some articles that have been created--beginning with scientific study of engineering approaches and ending with placement of the new machine into serial production--is at times more than 10 years instead of the recommended 5-6 years. And in many cases this occurs precisely because of deficiencies that exist in the management of the industry's science and technology.

I will dwell on a typical case, where painstaking, most difficult work by an NII's collective of scientists had come to an end and a new machine was recommended for series production by the official acceptance commission. Then sometimes something occurs that is strange and unnatural, wherein the "life cycle" of the machine that has been created is suddenly stopped and remains uncompleted for many years, during which the new model of mine equipment, which still has not been born, becomes obsolete, and, in the final analysis, it turns out that great expenditures of resources and efforts have been wasted. This occurs mainly because of the severe problem of designating the machinebuilding plant that will manufacture the equipment.

The fact is that under the organization and management structure for scientific and technical progress that exists in the branch, all the scientific-research institutes and their experimental plants are under the jurisdiction of the ministry's Engineering Administration, while the specialized design-development organizations (KB's) and series-producing machinebuilding plants, upon which, in the final analysis, the fate of the machinery and equipment conceived in the NII's depends, are subordinate to another Minugleprom administration--Soyuzuglemash. And since the Engineering Administration does not solve problems associated with planning the production activity of the design-development institutes and of Soyuzuglemash machinebuilding plants, advances and approaches to them are sought by the originators themselves of the articles and by NII staffworkers. As a rule, these attempts prove to be ineffective because the "outside" ideas of the interested parties usually are not translated into metal.

And so approved engineering tasks and design documentation for the creation of new machines will lie in the NII's for years without action, because there is no one to convert them, and it is impossible to make even a single model of a large machine rapidly and with good quality at the NII's own small experimental plants, where many of the needed machine tools and equipment are lacking (and, yes, there are not enough skilled workers).

I will cite an example. A mechanized hopper-conveyor that KNIUI scientists developed was recommended for series production back in 1974 by an interagency acceptance commissions. However, up until now the machinebuilding plant that will manufacture it has not been determined. It was necessary to start manufacture of a model for the shakedown series at our own experimental-equipment plant. I will note, incidentally, that the model had been turned over for operation with an incompletely outfitted pool of machine parts, and, during the model's manufacture

the institute was forced to ask series-producing machinebuilding enterprises to make complicated assemblies, components and parts. And the latter's own production plants were overloaded.

All this leads to delay and added expense in the process of creating new mining equipment and, at times, wasted work.

So the time has come to improve the industry's structure and organization for managing the development of science and technology and to bring them into correspondence with the rising requirements of the day.

In order that new machines and technological processes will be developed much more rapidly and better, in a single continuous cycle—from scientific research and the conduct of comprehensive studies prior to the manufacture of experimental lots and shakedown series, testing and industrial production—we consider it desirable to create under USSR Minugleprom an All-Union Science-and-Production Association for Scientific and Technical Progress (VNPO), as an organ for managing the industry's scientific-research and design-development organizations, that will be independent in regard to financing and economic relationships and will have at its disposal a high-capability industrial-test machinebuilding base.

Simultaneously, the concentration of scientific potential in the field should be raised, after making a substantial consolidation of the basin's institutes and their experimental test plants by the amalgamation of separate NII's, KB's and other independent subunits (branches, support centers, and so on).

Based upon the decisive role that reequipping the industry's coal enterprises with machinery plays in the matter of speeding scientific and technical progress, the CPSU Central Committee and USSR Council of Ministers decree requires that capacity be developed in 1981-1985 at coal machinebuilding plants for producing basic mining equipment, after its quality and reliability has been raised. During the 11th Five-Year Plan, large-scale production of new and more progressive types of breakage-face, tunneling, transporting and other equipment will be organized at the industry's machinebuilding plants.

In light of the newly decreed tasks of reequipping underground coal mines with machinery, KNIUI scientists and designers are to carry out large amounts of urgent research and development during the current five-year plan. Thus, the KMV-130 longwall-mining machine for slicing thick, gently sloping seams, producing coal from below the roof, and pneumatic and hydraulic gobbing complexes for working coal reserves under built-up areas of the city of Karaganda and also where mine-geology conditions are complicated, will be brought into industrial realization.

Progressive operating schemes for breakage-face operations, including the erection of artificial roofs with the slicing of thick, gently lying seams, without leaving interlayered members, which will increase work safety during working of the lower layers and will permit coal losses to be reduced 1.5-fold to 2-fold in thickness, using a circuit-free thyristor system for feed and for the central positioning of electrical equipment for the KSh-3m type cutter-loaders; unmanned excavation of thin coal seams, using Tentek-2k mining installations; and others—are to be prepared and introduced widely at the basin's mines.

It is also planned to develop and bring into industrial introduction some highly productive technologies and means for mechanizing development work, underground transport, coal preparation and other processes, which will insure a further rise in coal production effectiveness.

The November 1981 CPSU Central Committee Plenum and the Sixth Session of the USSR Supreme Soviet paid great attention to strengthening the country's fuel and power base. The Karaganda Coal Basin's coal workers and scientists are doing everything to execute successfully the tasks contemplated for the 11th Five-Year Plan.

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## FUELS

### NEW EXCAVATOR GOES IN SERVICE

Moscow IZVESTIYA in Russian 25 Mar 82 p 2

[Article by G. Zazvonov: "The Giant Tests His Strength"]

[Text] At the open coal pit "Bogatyr'" of the production association "Ekibastuzugol'," the new powerful rotary excavator with plant number 1 has begun to operate.

It is capable of extracting 4,500 T of coal per hour even in 40-degree frosts. This giant was assembled by the brigade of V. Lebedev from the trust "Kazpromtekhmontazh" of the Kazakh SSR Ministry of Installation and Special Construction Work. I came to the assembly platform when the numerous assemblies and systems of the rotary complex were being tested.

"Turn to the right!" the brigade foreman commands over the loudspeaker. The lower structure where the apparatus room, rest room for the crew, loading conveyer and various areas for servicing the giant steel machine begins to turn slowly. From the side it is similar to a giant with outstretched arms. The dumping and rotary arms give this impression. They spread 150 meters. The upper structure of the steel machine rises to the height of a 10-story house. A new command sounds and the excavator begins to move on three pairs of caterpillar tracks 2.5 meters wide each.

The new complex noticeably differs from its predecessors. It has a much more rigid and thicker support section of the dumping arm. Now a considerable stream of coal travels over its conveyers. The electrical circuit of the excavator has been altered. Instead of 22 buckets, the rotary has 32. This guarantees extraction of coal in smaller pieces. The vibration of the entire complex has consequently been greatly diminished. Its assembly would take a year by the standards, but the people of V. Lebedev coped with this assignment 3 months earlier.

"We organized an enlarged cost accounting brigade," Viktor Vasil'yevich relates. "It included 60 highly skilled workers: riveters, welders and specialists in assembling hydraulic and pneumatic systems. All the excavator parts come from the plant in a heap. We enlarged them into multiton assemblies. We were able to gain time through this and the individual skill of each installer.

But it is not that easy to assemble the excavator on a platform exposed to all the winds. Its rotary arm is 300 tons, for example, and the moving part is 720 tons: an assembly made of caterpillar tracks, engines, reducers, arms, etc. I encountered here the already rare occupation of riveter. There are 22,000 rivets in the rotary complex. They vary in diameter and length. Each one has to be heated in a forge until it is raspberry color and then with a pneumatic hammer and pneumatic dollies it is riveted in no more than 40 seconds. Otherwise the metal cools. V. Yarygin heads the team of such experts. Even in inclement weather, covered by a special tent, the riveters perform the difficult and accurate work with mastery. The rotary excavator is to extract coal for no less than 20 years.

Now the tests of the excavator supplied by the GDR machine builders have been completed. Dozens of powerful electric motors, conveyer belts, over a thousand points in the lubrication system, control boxes have been checked. The state commission says "okay" for the operation of the steel giant. The test machine operators V. Mikhaylov, P. Tsimerman, R. Sharipov and others take their work places. The machine moves towards the coal pit at a rate of 350 meters per hour.

The installers of V. Lebedev are now assembling two more excavators. They are still on the open platform. The construction workers from the trust "Kazstal'montazh" work side by side with them. They are erecting a giant structure designed for the assembly of the large rotary complex assemblies.

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## FUELS

### SUGGESTIONS MADE TO INCREASE GEORGIAN COAL OUTPUT

Tbilisi ZARYA VOSTOKA in Russian 4 Feb 82 p 2

[Article by A. Dzidziguri, academician of the Georgian Academy of Sciences: "Increase Field Output"]

[Excerpts] The Tkibuli-Shaorskiy field with its considerable reserves is the most promising for the Georgian SSR. However, tunneling of the shafts, and especially extraction of the coal are not done here on a sufficient technical level. Advanced technological plans of stoping operations and efficient working systems are introduced slowly.

Scientifically substantiated and lengthy practice has already proven that the most correct trend in work under the complicated conditions of the Tkibuli-Shaorskiy mines is the primary use of hydraulic flushing of the worked space and the means of comprehensive mechanization. Flushing is an efficient method which promotes a considerable increase in the safety of the work when finishing off a thick coal mass of complex structure if it is possible that various dynamic phenomena could occur. In addition, the use of flushing the worked space permits a drastic reduction in the operating losses of the coal, almost complete exclusion of the danger of spontaneous combustion of coal and endogenous fires, and guarantees effective control over gas release, the creation of normal climate conditions in the shafts and protection of the field surface. The use of flushing creates favorable conditions for separate excavation of the liptobiolith coals and shales which are irreversibly lost.

It should be noted that hydraulic flushing was used for the first time in Tkibuli in 1946. Its specific fraction in the working subsequently reached 38-40 percent. However, starting in the early 1970's, it was systematically reduced. Hydraulic flushing is now practically not used. What is the reason? The absence of flushing systems at the active mines mainly prevents the use of hydraulic flushing. Construction of a central quarry for extraction of the flushing materials has not yet been started, although the working draft of the quarry was approved back in 1976.

The Tkibuli-Shaorskiy mines currently use coal extraction only with complete cave-in of the roof. It is necessary to take into consideration however, that the conditions for working the coal beds will become even more complicated in the near future at the Tkibuli mines, and it would consequently be expedient to begin preparatory operations to use systems with hydraulic flushing, the

most promising under the given conditions. We are primarily speaking of the mines "Tkibul'skaya" imeni V. I. Lenin and "Vostochnaya-2" where we should examine the question of restoring the mine flushing systems which existed at one time, and start construction of a new flushing complex with consideration for the achievements of technology in the field of extracting and transporting the flushing material. The creation of new technological plans and mechanized complexes for finishing off the coal beds with hydraulic flushing of the worked space requires especial attention.

At present when there is still no necessary base for the use of hydraulic flushing, we have to temporarily use the technology of working with roof cave-in. It consequently becomes necessary to improve these systems as well. A lot of work has been done in this area by the specialists of the institute of Mining Mechanics of the Republic Academy of Sciences, "Gruzgiproshakht," and the production association "Gruzgol'." In order to increase the level of mechanization of the stoping operations and labor productivity, it is planned to work the thick coal beds in horizontal layers. This method, although it does not resolve the radical problem of efficient working at the Tkibuli mines, nevertheless is better than the technological plans currently used. It is also necessary to accelerate the planning and beginning of construction of the new mine at the Shaorskiy section of the Tkibuli-Shaorskiy field.

Georgia is the only republic of the Transcaucasus where coal is extracted, and here, as already indicated, the Tkibuli-Shaorskiy field is the most promising. However, we cannot forget about our two other fields, the Akhaltsikhskiy lignite field and the Tkvarchel'skiy coking coal field.

With the extremely limited reserves of the Tkvarchel'skiy coal field, geological-exploration in order to reveal new reserves and transfer of the low category reserves to higher, drastic reduction in the operating losses in working the thick steeply inclined beds, finishing off previously abandoned reserves, and industrial development of new sections and areas become very important.

One should radically reexamine the attitude towards the Akhaltsikhskiy field and continue work here to solve questions of extracting and using the Akhaltsikhskiy lignite. Previous research has shown that these coals can be used as energy fuel in agriculture, chemical industry, etc.

The republic's coal industry has now been set important tasks which are very important for strengthening and further developing the fuel and energy base. They can only be resolved through skilled operation of the coal fields. The success of the matter can be fostered by even closer strengthening of the creative cooperation of the scientists, planners and production engineers. The most serious attention should be concentrated on the personnel problem, a very urgent one. One of the most urgent questions for the production association "Gruzgol'" for example, is provision of highly skilled engineering and technical workers and workers for the mines, enrichment plants and other facilities. In the association, as practice has shown, there is the highest percentage in the country's coal industry for replacement of engineering and technical workers with practitioners who do not have special higher or secondary special education. It is natural to ask where engineering and

Technical workers can be obtained for the coal extracting enterprises of the production association? There are clearly too few graduates of the Georgian Polytechnical Institute imeni V. I. Lenin who are specialist mining engineers in the specialties of "technology and comprehensive mechanization of underground working of mineral fields" and "mining machines and complexes." Consequently, it appears that it is necessary to at least double the admission of this contingent. The leadership of the production association itself has to solve many problems. They should be concerned about reinforcing the young cadres at the site and creating normal housing-general conditions and favorable working conditions for them. The formation of scientific-technical and engineering habits among the young workers and improving their skill must also be the subject of constant concern of the leadership of the mines and the production association, in particular.

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## FUELS

### KARAGANDA COAL MINE OUTPUT INCREASES

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Mar 82 p 1

[Article by V. Khmelenko, miner of the mine imeni 50th Anniversary of the October Revolution, laureate of the Leninist Komsomol of Kazakhstan prize: "Share the Fire!"]

[Excerpts] The doors of the "underground elevator" closed sharply and the two-level cage rapidly went to the 600-meter level.

It is a short distance from the shaft to the longwall which is being worked by the seventh section. The shift of the repairmen of Eduard Graf has now ended there. "Good work lads," the brigade foreman Mikhail Parkalov noted, glancing askance at the conveyor belt with the thick layer of sparkling coal. "By our approach, the combine will have been lowered so that we do not lose time in preparation."

This is the last shift of the regular shock-worker week.

The seventh section where the brigade of Parkalov is working is by right considered the best at the mine imeni 50th Anniversary of the October Revolution.

The miners of the seventh section last year began to master the complex "KM-130." They were glad that they had received the new equipment but did not have any experience of working with it. They were assisted by their constant competitors in the competition, the miners of the mine imeni Kostenko. Five men were sent every day to this mine and took the control levers of the complex. The Kostenko miners gladly trained their competitors in the methods of working with the powerful mechanized timbering.

Soon the pupils outdistanced the teachers. Last year with their new machine they extracted almost 750,000 tons of coal.

In honor of the 60th anniversary of formation of the USSR, the brigades of the seventh section have been committed to extracting 700,000 T of coal in 60 shock-worker weeks. The weeks have really become intensive. During the past week, the section of Nikolayev, for example, produced over a thousand tons of coal

above the plan. Now it has 11,000 T of fuel on its account which has been extracted in addition to the assignment. The entire collective of the mine imeni 50th Anniversary of the October Revolution on the shock worker watch in honor of the 60th anniversary of formation of the USSR have already produced 40,000 T of coal above the plan. Several thousand tons of them were extracted during the past week.

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## FUELS

### NEW STATIONS BUILT TO PUMP HYDRAULIC FLUID TO COAL-MINE SUPPORTS

Kiev PRAVDA UKRAINY in Russian 18 Mar 82 p 2

[Article by Engineer A. Denishchenko of Dongiprouglemash [Donetsk State Design-Development and Experimental Institute for Coal Machinebuilding]: "A New Station"]

[Text] Miners have already become accustomed to this picture at the mine face: the gleaming shafts of the hydraulic mechanized mine supports recede into the distance in an even row, a thick river of mined material pours precipitously from the cutter-loader in obedience to the conveyor's movements, and a beam from a miner's light spotlights the sparkling faces of the coal. Feed systems--electric, ventilation and hydraulic--support the work's rhythm.

Among the feed arteries are the pumping stations that feed working fluid--a water-and-oil emulsion--to the mechanized supports. But as the workload at the mine face increases, the pumping stations work under increasing stress, and that means that the main component thereof--the pump--works increasingly rapidly. At SNU-5 stations, the pumps have to be changed practically as often as five or six times per year.

The replacement of the unreliable SNU-5 installations with new, more improved and more durable pumps is the task that was set before coal-industry design developers. Dongiprouglemash specialists I. Yu. Varshavskiy, V. S. Dubovoy and Ya. M. Reka, in close contact with machinebuilding and production workers V. I. Samarts and N. P. Berestov, developed and manufactured five test models of a new pumping station with higher reliability indicators in the shortest possible time. The designers proposed an original scheme that would permit (and this has already been confirmed in practice) longevity of the installation to be tripled and will enable operation for thousands of cycles at the mine face at any of the prescribed regimes.

A check of the innovation was conducted at the Underground Mine imeni 60-Letiya Sovetskoy Ukrainy of the Lisichanskugol' Association and at the Miuskaya Underground Mine of the Torezantratsit Association. The Lisichansk miners tested the SNT-32 installation as part of the new KD-80 longwall mining machine for thin seams, which was also created within Dongiprouglemash's walls. The first, which the miners evaluated right away, is convenient in operation: each component is accessible for inspection and preventive maintenance, and the labor intensiveness of servicing is reduced by an average of 6 norm-hours per day. The accessibility of the station's members yields a substantial saving of time during repair work: thus, it takes 15-20 minutes to replace a sealing ring assembly for the three plungers. The two main parts of the unit are located on separate frames--this simplifies assembly.

The main advantage of the station over preceding machines is that it is a quiet-running three-plunger high-lift pump. The pump's control regime precludes "starvation," that is, during closure of the flow of working fluid at the pump's intake, a full load thereof occurs, and the plungers and valves remain stationary. Longevity is guaranteed by the design itself of the pump. It is this successful approach that provides long service life before overhaul—5,000 hours.

All this has enabled the Interagency Commission on the Results of Tests of Experimental Models to recommend the innovation for serial production with award of the highest quality category. This year the miners will receive 75 highly reliable pumping stations.

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## FUELS

### RETURN TO HYDRAULIC FLUSHING OF GEORGIAN COAL MINES CALLED FOR

Tbilisi ZARYA VOSTOKA in Russian 30 Mar 82 p 2

[Article by D. Dobordzhinidze, deputy director of the production section in the production association "Gruzugol", honored engineer of the republic: "How Do We Extract Coal?"]

[Text] The letter of the Georgian Communist Party Central Committee to the communists, all workers of the Soviet Georgia on the occasion of the 10th anniversary of the CPSU Central Committee decree on the Tbilisi party gorkom stresses the need to have a creative approach to solving the tasks facing each worker personally at his place of work. This requirement also concerns the specialists working in the coal extracting sector and guaranteeing the contribution to realization of the fuel and energy problem. Today we would like to discuss the work of the Tkibuli miners.

When we speak of the Tkibuli coal mines, then, we naturally mean the Georgian coal industry, since our republic has no other promising fields. The searches made in recent years have confirmed that the industrial reserve of the Tkibuli-Shaorskiy coal field is hundreds of thousands of tons and its working without losses requires high professional skill.

In the world practice of coal development, it is difficult to find another unique field like this which could compare with Tkibuli-Shaorskiy in its multisided specific complexities. It is characterized by great thickness of the beds, thickness of the series and their particular variability, fluctuation in the pressure angle, abundance of dust, gas and their explosiveness, complexity of the field tectonics, capacity for active spontaneous combustion of the coal and associated dynamic phenomena. The presence of even one or two of the listed complications on the fields of Donetsk, Pechora, Podmoskov'ye, Urals, Siberia, Karaganda, Kuznets, etc. is already considered a fairly complicated problem. The efforts of a number of scientific research institutions, design offices and major plants of special purpose are directed at overcoming each of them.

At the same time, the complexity of working the Tkibuli field, in contrast to those listed above, is just the need to take measures of a completely different type than stipulated by the already developed instructions. For example,

according to the instructions for measures to control dynamic phenomena, it is categorically forbidden to leave the so-called coal blocks. However, their use at the Tkibuli-Shaorskiy field is permitted. With complete cave-in of the roof, and in this specific case we are concerned precisely with such a characteristic phenomenon, the selection of any technical solution is generally associated with complexities, the development of a fire or mine explosion. Is there an escape from such a complicated situation? It is to use the method of hydraulic flushing which ensures safe mining operations. It should be said that the use of this method is a truism of mining, however, some specialists of the production association "Gruzugol'" are now ignoring this so-called technical axiom. And this is happening today when it is common knowledge how many efforts had to be made to introduce the promising method of hydraulic flushing of coal extraction at the Tkibuli mines.

It is correct to ask what was the cause of such a particularly negative attitude towards such an advanced method? The reasons for abandoning it are unfortunately fairly subjective. They are the extremely limited position of a number of leaders who headed operations at the Tkibuli mines in the past. None of them, and we are convinced of this by the current situation, strived to introduce complicated technical and technological processes, orienting themselves on the future. They conducted a technical policy which was only effective for the short period of their stay in the leadership position. It goes without saying that in this situation, none of them had time to improve the method of hydraulic flushing. Therefore this method of coal extraction was essentially doomed.

The hypothesis, and in its time it acquired the right to life, that coal extraction will rise with a shift of the mines to complete cave-in of the roof, was not justified. The opposite happened. The Tkibuli mines imeni V. I. Lenin and imeni I. V. Stalin now extract much less coal than in the 1960's, i.e., when 40-50 percent of all the coal was extracted by the method of hydraulic flushing. As a result, starting in 1958 until the present, coal extraction in Georgia has significantly diminished.

It is common knowledge that the danger of mine explosions has recently emerged in the Tkibuli coal field. The Leningrad All-Union Scientific Research Surveying Institute (VNIMI) and the Georgian branch of this institute have conducted fruitful work to investigate this dynamic phenomenon and to control it. However, the scientists of the Georgian branch of the VNIMI subsequently supported the then leaders of the production association "Gruzugol'," believing that the hydraulic flushing method was the reason for the mine explosions. A plan was developed in 1974-1975 for so-called comprehensive measures to develop the Tkibuli-Shaorskiy coal field. As a result, the use of hydraulic flushing was reduced to nothing. Within several years the mine imeni Lenin was left outside the work front because of these measures.

The new mine "Vostochnaya-2" which had been under construction for 18 years and had cost the state R 25 million was closed. Stopping of this mine for 3 years and additional expenditure of about R 3 million to replace the hydraulic flushing method with another, the method of conversion among other things also were a part of the implementation of this apology for comprehensive measures. If this had not happened, the Tkibuli mine "Vostochnaya-2" would be a powerful mining enterprise today.

This economic policy naturally resulted in large losses of coal reserves at the Tkibuli mines. For example, from 1960 to the present, 28 million T of coal have been extracted in Tkibuli. If we consider that the actual losses of extracted coal reserves in our mines reach 40-50 percent, then it turns out that a quantity of coal was left under the ground which would have sufficed for the next several years. And the extraction could be done without any capital investments to the Tkibuli field.

The production association "Gruzugol'" is currently carrying out fairly productive work for efficient stripping of the mine fields, introduction of comprehensive mechanization of the production processes, etc. However, coal extraction by the method of roof cave-in of the coal beds is nevertheless widely used by the association miners, and unfortunately, there are no noticeable efforts to restore the method of hydraulic flushing. A natural question is asked: what is presently preventing the introduction of the method? In all probability it is underevaluation of this problem, and underevaluation of many other complicated problems which develop in the production association "Gruzugol'". By other complicated problems we mean in particular the mining explosions and the outbreak of fires in the mines. Some specialists of our production association unfortunately suggest a technology for working the coal beds which does not permit avoidance of the outbreak of fires.

The danger of fires was not taken into consideration at the mine imeni V. I. Lenin during the introduction of a flexible covering. There is another danger here in addition to the outbreak of fires. This is the so-called surface descending beds. They are usually not of the same hardness. Some of these beds are easily destroyed, and some, on the contrary, are difficult to destroy. It is naturally impossible under these conditions to lower an entire block by a single explosion. The miners of each shift therefore have to work in a caved-in and unreinforced space, and this is very dangerous.

I would like to say a few words about some features of the manifestation of mine explosions in our mines. Stratigraphy, lithology, the physical-mechanical properties of lateral swinging and other mining engineering conditions of the Tkibuli mines are radically different from the conditions of other fields in our country. Thus, the conditions and the very nature of the manifestation of the mine explosions are not subordinate to generally accepted theories which many specialists are involved in developing. Nevertheless, as yet no one universal theory has been developed which completely meets the practical needs.

The main reason for mine explosions under our conditions is a number of very thick sandstone beds located in the stacking and roofing sides. How does this phenomenon develop? A solid layer of sandstone 100-120 m thick rests on the coal blocks which remain between the fields and layers. The blocks are under great pressure. As a result of the continuous movement of the rocks and exposure of new spaces, the pressure equilibrium is disrupted. One of the blocks is destroyed, as a result of which there is a sudden break in the large areas of sandstone layers. A noise wave develops, a mine explosion of destructive force. All of this occurs in space unseen to the eye, and there it is difficult to control this phenomenon. The mine explosion can be prevented only if the sandstones are deprived of the possibility of moving. This is done using hydraulic flushing of the worked space.

At the current stage, the use of hydraulic flushing is necessary at the Tkibuli mines "Vostochnaya-2" and imeni V. I. Lenin since extraction of high-quality coaking coal in these mines must be done with the minimum losses and danger. In order to use hydraulic flushing, it is necessary to have a technically modern quarry system. If there was the desire to organize it, it could be set up.

A correct technical solution is the use of limestones as the flushing material. In this case, the flushing system must be set up on the basis of cyclic limestones. At the same time, another technical innovation must be introduced. Since the fields to be worked have now moved to great depths and the slurry pressure on the trunklines and accidents associated with pressure are very great, it is best to introduce within the mine and create there mixing chambers at the ventilation level of the worked level which is above the level to be worked. This will reduce the pressure of the slurry, the length of the trunkline for water consumption and decrease the possibility of the suggested accidents.

It is thus impossible to work the coal beds at the Tkibuli-Shaorskiy coal field without using hydraulic flushing. Its use will increase the output of this field and the miners will make a contribution to solving the fuel and energy problem whose importance was stressed at the 26th CPSU Congress, and in a number of decrees of the CPSU Central Committee and the USSR Council of Ministers concerning the further development of the country's coal industry.

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## FUELS

### PNEUMATIC-CAPSULE TRANSPORTER EVENTUALLY WILL HAUL COAL

Moscow GUDOK in Russian 19 Mar 82 p 4

[Article by V. Baybrut, APN [Novosti Press Agency] correspondent: "The First Starts of the Pneumatic Hauler"]

[Text] A few years ago an underground air road, Lilo-1, was built for the first time, in the small Georgian settlement of Shulaveri. The operating principle of this 2,200-meter "industrial-test installation for pipeline pneumatic transport of freight in special capsules" is simple. Six capsule containers are installed in a pipeline of the same diameter as gas and oil pipeline strands (they, incidentally, can be used for such transport under certain conditions). The pneumatic mover--an installation with special seals--permits air that is compressed to 0.06 atmosphere to move this train at a speed of 60 km/hr. Fifteen tons of crushed rock are transported per trip. Loading and unloading are controlled from a control panel by just one person.

A second phase of the route, Lilo-2, 17.5 km in length, went into operation recently. Now the train hauls 40 tons of crushed rock per trip, or 225,000 tons per year. Startup of the second line has enabled the release of hundreds of workers and of 200 dump trucks that delivered gravel to construction-industry enterprises in Tbilisi.

Pipeline transport attracts attention with its speed, which can reach several hundred kilometers per hour, and its high throughput. It does not depend upon weather conditions, it does not pollute the air, and it can provide uninterrupted transport between facilities that are located at great distances from each other.

Right now a third line, Lilo-3, 40 kilometers long and with an annual transport capacity of 2 million tons, is being built at Shulaveri. Soon pneumatic-hauler lines will appear in other parts of the country. In particular, a design for pneumatic-mover lines that will transport coal from the Kuznetsk Basin to the Urals and from the Donbass [Donets Coal Basin] to the depths of the Ukraine and other places is being developed. According to the economists' estimates, transporting coal by pipeline will cost one-third as much as rail transport.

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## FUELS

### KUTAISI PLANT PRODUCES MOST OF USSR'S OIL WELL PUMPS

[Editorial Report] Tbilisi KOMUNISTI in Georgian on 13 February 1982 page 2 carries a 1,000-word piece by Sh. Amashukeli and D. Gedenidze on the highly successful performance of the Kutaisi Electromechanical Plant, which has gradually come to specialize in the production of several models of electric engines used in oil wells all over the USSR. The plant produces 70 percent of all such engines in the country. None of the models bear the Emblem of Quality yet, because the management wanted to perfect its current line first; now attestation will come within the year and will continue to rise. Plan fulfillment figures are always good and above target, and the plant is successfully converting to the new economic indicators. It also designs and builds electric loaders as well as water pumps, the latter being a consumer item in high demand. Moreover, the plant's products have been especially successful in conserving metal and other manufacturing components.

### GEORGIAN OIL CHIEF VIEWS PROGRESS, PLANS

[Editorial Report] Tbilisi KOMUNISTI in Georgian on 20 February 1982 page 2 carries Vl. Ginzburg's 1,300-word text and pictures interview with Gruzneft' General Director Revaz Tevzadze concerning the progress made by the Georgian oil industry since the first large strikes in 1974. Georgian oil (along with casing-head gas) now occupies a firm place in the Soviet Union; it is "light" (highest quality) and cheap. All economic indicators over the years have been good, and growth has been rapid. By the end of the 11th Five-Year Plan Georgian oil should supply all the republic's needs. Figures are given on plans and obligations for the coming period, prospective areas such as Ninotsminda and Rustavi, efforts to increase recovery in older fields, and so on. The sector has highly skilled and experienced cadres, and wages are good. Reference is made to certain shortcomings in regard to geological surveying and exploratory drilling, and the construction ministries are chided for delays that hamper progress. Housing has been a problem, but an oilmen's community, with all the facilities and amenities, is to be built on the airport highway in Tbilisi's 26 Commissars Rayon.

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## FUELS

### BRIEFS

**NEW ANTHRACITE MINE OPERATES**--The Dolzhanskaya-Kapital'naya Underground Coal Mine in Voroshilovgradskaya Oblast has gone into operation. Each year it will produce 3 million tons of anthracite. [Text] [Moscow EKONOMICHESKAYA GAZETA in Russian No 1, Jan 82 p 3] 11409

**KARAKANSKIY STRIP MINE**--Coal workers have undertaken industrial development of the Karakanskoye Field in the Kuzbass [Kuznetsk Coal Basin]: walking excavators have forced thousands of tons of steam coal from the ground. The mine section that is going into operation is the first phase of the Karakanskiy Strip Mine. Its capacity will be 10 million tons of coal per year. The special value of the underground storehouse is that rich seams lie close to the surface. This will enable them to be excavated by the more economical open-cut mining method. Creative collaboration of the designers and construction workers has enabled industrial assimilation of the field to start almost a year earlier than planned. [Text] [Moscow KRASNAYA ZVEZDA in Russian 7 Feb 82 p 1] 11409

**ALARDINSKAYA'S COKING COAL**--Osinniki--V. Chushkin's brigade from the Kuzbass [Kuznetsk Coal Basin] Alardinskaya Underground Mine has added more than 3,000 tons to the February schedule for mining coal. Last year the collective emerged among the 500,000-tonners, the first at the mine to do so, and right now it intends to confirm its feat. Each day almost 2,000 tons of coking coal are mined from a longwall by the KM-130 longwall mining machine and sent to the surface. The advanced miners have committed themselves to raising V. Golyshev's brigade in the neighboring section to the 500,000-ton level. [By V. Kladchikhin] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Feb 82 p 1] 11409

**NEW NOVOKRAMATORSK WALKING EXCAVATOR**--Kramatorsk--15 Jan--For the first time this year miners of the Strip Mine imeni 50-Letiya Oktyabrya in the Kuzbass [Kuznetsk Coal Basin] received equipment for the effective strip mining of coal. Yesterday the Novokramatorsk Machinebuilding Plant imeni V. I. Lenin began to unload a new type of walking excavator that had been sent to it. The machine, with a bucket capacity of 13 cubic meters and a 50-meter boom, is a representative of the fourth generation of walking excavators that has entered serial production at the enterprise. The new unit's productivity will be 1.7-fold that of the basic 10-cubic meter model: it will be able to excavate 4 million cubic meters of rock per year during stripping operations. The overall productivity of the earthmoving equipment that NKMZ [Novokramatorsk Machinebuilding Plant] will produce this year for Siberia's miners will enable them to increase the annual amount of stripping work by almost 150 million cubic meters. [RATAU [Radio-Telegraph Agency of the Ukraine] correspondent] [Text] [Kiev RABOCHAYA GAZETA in Russian 16 Jan 82 p 1] 11409

**HIGH-SPEED CUTTER-LOADER—Donetsk**—The collaboration of specialists of the Russian Federation and the Ukraine has enabled new equipment for excavating Siberia's thick coal seams to be created. A cutter-loader designed for high-speed excavation of deposits of up to 3.2 meters thick have been sent to series production. It was designed at Dongiprouglemash [Donetsk State Institute for Design-Development and Experimental Coal Machinery]. But scientists of the Kuznetsk Scientific-Research Coal Institute developed the complicated roof support. All the equipment is controlled remotely. Brigades of five people are adequate for one pass along the face, removing more than 100 tons of coal. The cutter-loaders will be sent to the miners by the Gorlovka Plant imeni S. M. Kirov, the other equipment by machine-builders of the city of Kiselevsk, Kemerovskaya Oblast. [By B. Gertsenov, RATAU [Radio-Telegraph Agency of the Ukraine] correspondent] [Text] [Kiev PRAVDA UKRAINY in Russian 18 Feb 82 p 1] 11409

**VOROSHILOVGRADSKAYA MINE NO 1**—The collective of Voroshilovgradskaya Underground Mine No 1—one of the winners of the 1981 All-Union socialist competition—is toiling with high productivity at present. Since the start of the year it has sent 280,000 tons of fuel to the consumers, more than 25,000 tons of it above the plan. The miners' brigades of I. Lisovskiy, M. Salyuk, P. Yakushev have made the greatest contribution to the success of the advanced enterprise. Among the tunnelers, primacy in the competition was retained by the collective under V. Plyuvako. [By V. Mikhaylichenko] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 23 Mar 82 p 1] 11409

**SUKHODOL'SKAYA-VOSTOCHNAYA COAL MINE**—The article, "How an Underground Mine Was... Cut Down" (PRAVDA UKRAINY, 24 October 1981), told about the slow pace of construction of the Sukhodol'skaya-Vostochnaya Mine. Voroshilovgradshakhtostroy [Voroshilovgrad Underground-Mine Construction Combine] chief V. T. Khvorostyanny reports that the article was discussed at a meeting of supervisors of the administrations and trusts that are taking part in building this mine and also of supervisors of Voroshilovgradshakhtostroy and the republic's Ukrshakhtostroy [Ukrainian Underground-Mine Construction Association]. The minebuilders' criticism was admitted to be correct. Erection of the Sukhodol'skaya-Vostochnaya has been stretched out because of miscalculations in planning the construction and installing work and delays in the allocation of capital investment. The combine has approved measures developed by the prime contracting trust, Krasnodonshakhtostroy [Krasnodon Underground-Mine Construction Trust], which were aimed at reducing the time spent performing mining work for the first phase of the mine and at providing for the turnover of new longwalls at the 915-meter horizon for operations. In particular, these measures required the creation of conditions for stable, highly productive tunneling excavation in 1982. Special attention was paid to questions of reducing worktime losses, providing tunnelers with the necessary materials and equipment, and improving discipline and work organization in the brigades. In order to monitor construction progress and coordination of the work of the mine tunnelers and the installing and construction organizations, and also for purposes of responsive decisions on questions that arise at the mine, controller conferences are being held weekly, attended by the primary supervisors of administrations, trusts and the Voroshilovgradshakhtostroy combine, the directors of the mine and the enterprises that are being built, and the supervisors of the Krasnodonugol' production association. This year the number of tunneling brigades for Krasnodonshakhtostroy and Voroshilovgradshakhtoprokhodka [Voroshilovgradskaya Oblast Underground-Mine Tunneling Trust] alone will be brought to 16. Moreover, two brigades from operating underground mines of the Krasnodonugol' production association will carry out work on preparation of breakage faces for the third stratum during November-December

1982. The board of an operating mine has committed itself to providing the tunnelers with the required number of empty mine cars, and to allocate shifts for installing operations in the shafts. Execution of the contemplated measures will insure the turnover of three new longwalls for operation in 1982. [Text] [Kiev PRAVDA UKRAINY in Russian 11 Feb 82 p 2] 11409

YERUNAKOVSKIY COAL-FIELD DEVELOPMENT--Kuzbass [Kuznetsk Coal Basin] miners have undertaken to develop the Yerunakovskiy Coal Field. Mining is being performed by the strip method. The new deposit is equal to the Donets Coal Basin in coal reserves, a large part of which consists of coking-grade coal. However, there is also an essential difference. Nature laid down a singular coal pie, which is barely covered on top by sand and clay alluviation in the lagoon of an ancient sea. Labor productivity in the strip mines, as computations indicate, promises to be twice as high, and the prime operating costs for the fuel will be less than half as great for the branch's best underground mines. Miners of the Prokop'yevskugol' [Prokop'yevsk Coal Mining Association] have laid a new road to the "mine face," extended an electric-power line and shipped and erected equipment. Under difficult weather conditions, they had have to strip the seam after shoveling away more than 2 million cubic meters of soil. This year 500,000 tons of high-quality coal will be taken at the new strip mine. The work is being done by the rotating-personnel method. Not far from the taiga field the miners' city of Uskat is being raised up. [Text] [Moscow IZVESTIYA in Russian 16 Mar 82 p 2] 11409

EGK-8 EXCAVATORS AT WORK--Leningrad--Good news recently came to Leningrad from Kemerovo. Record excavation has been achieved here--in 1 month an EGK-8 excavator mined 520,000 cubic meters of ore. This strongman, which weighs 320 tons and is as high as a four-story apartment house, needs to scoop up rock with its shovel only five or six times to load up completely a dumpcar of 60-ton load capacity. Powerful, highly maneuverable excavators on crawler chassis serially produced by the Izhorskiy Plant imeni A. A. Zhdanov Association long ago won a good reputation. Many hundreds of these machines are being used successfully right now at the Ekibastuz and Kansk-Achinsk Fuel-and-Power Engineering Complexes and at other open-pit and strip mines in the ore-mining industry. Izhorskiy workers have mastered the production of two models of highly productive and reliable excavators with bucket volumes of 12.5 and 8 cubic meters. These facts confirm the fame of these giants persuasively. The rated productivity of the unit, which has been awarded the State Emblem of Quality, is 2.5 million cubic meters of rock per year. So that the excavators will always be on a par with the world's best models, our specialists are persistently executing a major set of operations to improve them," said association chief designer A. Bakhvalov. As the result of a considerable rise in the longevity of the machines' basic components, their weight is being reduced. Thanks to the production of better operating components and parts, the labor intensiveness of their manufacture has been reduced by several thousand norm-hours. The drivers' working conditions have been improved, and a special seat protected from vibration has been introduced. [By V. Alyushinskiy] [Text] [Moscow IZVESTIYA in Russian 19 Feb 82 p 1] 11409

MECHANIZED SLANTED-SEAM MINING--Novokuznetsk (Kemerovskaya Oblast)--22 Mar 82--Innovators of the Baydayevskaya Underground Mine of the Yuzhkuzbassugol' [Southern Kuzbass Coal-Mining Association] have helped to double the design capacity of a coal mine face. After excavating the upper layers of fuel, the underground miners sharply reduced productivity. There were several factors. One of them was that the lower coal seams were running at a great slant, on which it is difficult to

operate a cutter-loader. However, experienced miners V. Boyko, A. Plastunenکو and A. Krechet found a way out. They proposed to assemble at the mine face a high-powered OKP-70 longwall mining machine. And although this equipment is intended for working at only slightly inclined seams, the miners, with the help of a special anchor and a moving chain, adapted the machinery for work at an angle. The experiment exceeded all expectation: for the first time in the Kuzbass a productivity of more than 1,600 tons of coal per day, or double that mined at even slightly inclined areas, was achieved at slanted seams. [TASS] [Text] [Moscow PRAVDA in Russian 23 Mar 82 p 2] 11409

UKRAINE'S LARGEST ANTHRACITE MINE--The Dolzhanskaya-Kapital'naya Underground Coal Mine, with a capacity of 3 million tons of anthracite per year (this is 10,000 tons of coal daily), has become the largest in the Ukraine. Being introduced at the same time with it is the country's largest grouped preparation plant, with a capacity of 6.8 million tons of concentrate per year. When this system of two technologically related enterprises was erected, the builders assimilated 170 million rubles' of capital investment. Many of the newest engineering solutions were used at the mine and the plant, thanks to which the highest labor productivity in the Donbass will be achieved. For the first time in the practice of coal upgrading, the concentrate will be dried in a so-called "fluidized bed." All the industrial processes at the plant are so automated that it can be started up and stopped from one panel. The complex of mine and plant were built by workers of the prime contracting Sverdlovskshakhtostroy [Sverdlovsk Underground-Mine Construction Trust] of Voroshilovgradskaya Oblast and about 40 other different trusts and administrations. [Text] [Moscow IZVESTIYA 18 Feb 82 p 2] 11409

SYNTHETIC-FUEL MAKER TESTED--Tula--The ST-5 is a so-called industrial-test installation for obtaining synthetic fuel from brown coal. One is being built at the Bel'kovskaya Underground Mine of the Novomoskovskugol' [Novomoskovsk Coal-Mining Association]. The ST-5 is the prototype for enterprises that will use KATEK [Kansk-Achinsk Fuel-and-Power Engineering Complex] coal as raw material. [By I. Aryasov] [Text] [Moscow SOTSIALISTICHESKAYA GAZETA in Russian 12 Feb 82 p 2] 11409

MEZHDURECHENSK UNDERGROUND COAL MINE--Mezhdurechensk, Kemerovskaya Oblast--Having sent 1.84 million tons of coal to consumers, the miners of the Underground Mine imeni Lenin carried out their annual plan. New breakage faces are being readied here in good time and the equipment is being used effectively. The brigade contract and the mechanization of auxiliary processes have become reliable aids to the tunnelers, who have outpaced the scheduled by almost 2 months. The brigades of G. Ivanov, A. Zemtsov and V. Kuznetsov, which are equipped with integrated breakage-face mechanized equipment, are leading right now in the competition. [By V. Kladchikhin] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 Dec 81 p 1] 11409

NEW ROTARY COMPLEX OPERATES--Ekibastuz (Pavlodarskaya Oblast)--Bogatyr' Strip Mine miners observed the anniversary of the 26th CPSU Congress with the introduction into operation ahead of schedule of a rotary complex with a productivity of 4,500 tons of coal per hour. V. Baryshkinov's brigade loaded up the first trainload of fuel. Introduction of the high-capacity equipment and knowledge of how to operate it will enable the miners to mine 51 million tons of coal this year--5 million more than last year. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 28 Feb 82 p 1] 11409

RECORD COAL CAR LOADINGS--Ekibastuz (Pavlodarskaya Oblast)--More than 2,540 cars of coal daily--that is the loading volume that the collective of the Ekibastuz Railroad Yard of the Tselina Railroad came up with last year. According to this indicator, Ekibastuz is the largest rail "dock" in the world. The workers of the steel arterials, in collaboration with the miners, are continuing to increase the dispatch of fuel. A couple of days ago they achieved a record--in a day they sent customers 3,145 cars of coal. [By A. Kostyukov] [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 19 Feb 82 p 1] 11409

COAL-MINING SCHEDULE SURPASSED--Novokuznetsk--Miners of Ordzhonikidzevskiy Rayon of the city of Novokuznetsk have surpassed the production schedule by 3 days. Since the start of the year they have sent to the surface more than 2.5 million tons of fuel, 160,000 tons of it above the plan. Socialist competition for the highest workload per longwall with integrated mechanization, which has been widely promoted among the mining brigades, helped greatly in the success. Hero of Socialist Labor M. Reshetnikov's brigade from the Zyryanovskaya Underground Mine holds primacy here. The leading collective had committed itself to mining a million tons of coal by the 60th anniversary of the forming of the USSR. The miners, who coped with the task for the first 2 months of the year ahead of time, have already produced more than 250,000 tons of "black gold." [By A. Tenditny] [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 3 Mar 82 p 1] 11409

CS0: 1822/137

## PIPELINES

### YUZHNIIGIPROGAZ EXPLAINS GAS TRANSPORT DUTIES

Moscow STROITEL'NAYA GAZETA in Russian 5 Feb 82 p 1

[Article by A. Popov, senior scientific colleague of Yuzhniigiprogaz, candidate of technical sciences]

[Text] Yuzhniigiprograz is the largest in the sector and has accumulated a lot of experience in planning the most important construction sites of the gas industry.

Yuzhniigiprogaz is currently the general planner for the gas-transport system of the northern Tyumenskaya Oblast, the central regions of the USSR European sector. It is obliged to coordinate the work of dozens of planning and design organizations. Thus, for the Urengoy-Uzhgorod gas pipeline alone, it has involved 27 of these organizations. Some of them have their own subcontractors.

The "workers' relay race" has become for the planners an important reserve for early fulfillment of the assignments. In this year alone, our institute is faced with putting working drawings into production at 30 compressor stations, 1,500 kilometers of the line section of the gas pipeline for a total of R 2.5 billion of construction-installation operations. These volumes are 1.5-fold more than the program of the leading sectors of the institute in the preceding years.

We have created an office for the chief engineers of the projects in order to coordinate the actions of different subdivisions of the institute and collective resolution of the developing technical problems.

The Komsomol organization of the institute, of which I have been elected the secretary, is actively participating in the accelerated output of the planning documents. We are creating comprehensive creative youth collectives and are establishing contacts with the young people of other enterprises and organizations. We have concluded a contract with the Komsomols and young people of the All-Union Scientific Research Institute of the Gas Industry for scientific and technical cooperation for the 11th Five-Year Plan.

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CSO: 1822/141

## PIPELINES

### PROGRESS REPORTED IN CONSTRUCTION OF URENGOY-CENTER PIPELINE

Moscow IZVESTIYA in Russian 29 Mar 82 p 1

[Article by Ye. Borodin and V. Biryukov, special correspondents of IZVESTIYA: "People of the Blue Route"]

[Excerpts] Krasnotur'insk is a city of the northern Urals with orderly architecture and comfortable planning. The far side is famous for its eternally green coniferous forests ringed by the lazy Tur'ya River which means "swampy."

It seems that not long ago the Ural taiga which sheltered sparse northern settlements was distinguished by low population and silent stillness. But the geographic maps of these places have considerably changed in our time, and new identification signs have appeared. First a railroad line was laid from Ivdel' to the Ob'. Later an operational branch of the gas pipeline, significantly increased with the years, stretched from Igrim and Punga towards Serov and Nizhniy Tagil. Now six branches of the future main gas pipelines have been laid in a broad ribbon on the maps: Urengoy-center of the country. We are discussing the two primary routes Urengoy-Petrovsk and Urengoy-Novopskov. The first will be opened this year, the second slightly later.

The fat blue line which has been placed on the plan, drops steeply from the north to the southern point. Four cubes have been shaded on it: Pelym, Ivdel', Krasnotur'insk, and Novaya Lyalya. These are the four gas compressor stations which are supervised by the organizations of the central Urals. The party committees of the Sverdlovskaya Oblast and the construction-installation administration have sent their best forces here. The degree of readiness of the facilities varies. At the northernmost section, 4 kilometers from the Pelym settlement, the production equipment is being installed and the compressor station building is being constructed. At the same time, the surveyors, competing on the principle "workers' relay race," have extended the hand of assistance to the Tyumen' gas workers. The mobile team of P. Bronnikov and V. Konovalov went to the right side of the Ob' in a snowstorm, in 40-degree frost through deep snow and began to build up the Nyagan' compressor station platform. The center of the gas industrial complex will be somewhere here.

They had to drill wells 15-17 meters deep on the new uninhabited place, in cold frosts. The ground was frozen and the soil was inflexible. Sometimes the metal did not hold.

"In the comprehensive brigade of Anatoliy Buravilin we found experts everywhere. There were 30 of them. All knew how to lay a foundation and install equipment, and as you can see for yourselves, are engaged in an art. Our Buravilin workers are called the right flank. They completely justify this name," says Babchenko.

The brigade of Buravilin came to Pelym after completing work on the Urengoy-Chelyabinsk gas pipeline. The entire collective built the Tobol' compressor station. It is precisely there that they experienced and proved in practice what "workers' relay race" means and its founding principle--"from mutual claims to mutual help and support!" There they felt labor solidarity in a great cause. It is no accident that all of them went to the new area although they knew that it would not be easy. The area had just been outlined in Pelym, there were no houses or warehouses. The intense January cold had set in and the northern winds blew, but the lads, united by common labor, did not lose their heads. They learned to get out of various difficult situations. First they left the heated barracks and then began to set up a temporary "wooden city." Soon reinforcements arrived: assembled trailers, cafeteria, reading room and even a temporary bath. In a word, the experience of the workers was settling down.

"And take note that the lads did not lose time in vain. They mastered several specialties," Babchenko says with satisfaction. "Regenerators arrived at the site and the installers began to make foundations under them, began work to insulate the production pipelines. The installers are always at their post. Did I leave anything out?"

This is the strength of collectivism. Now Buravilin's lads have decided to finish the work cycle on the foundations for three turbogenerators ahead of schedule. They take enlarged assembled parts as is the practice at the construction of the Ivdel' compressor station.

The very first facility to be started up is the Ivdel' gas compressor assembly. The collectives of builders and installers of "Glavsreduralstroy," its sub-contractors, as well as the planners have adopted an increased commitment, to make the station ready on the eve of the May 1 holiday. This is not an easy commitment for the subdivision has not yet been completely supplied with specialists. Not all the equipment has come to the site. But they have to keep their word.

The construction headquarters which is led by the first secretary of the Ivdel' CPSU gorkom, V. Parshakov, set a specific task before the participants in the "workers' relay race": make the Ivdel' facility a model. In the words of the head of the construction complex, V. Chudinov, the most important reserve of time conservation is hidden in the use of the method of enlarged blocks. By introducing the advanced method, the builders and installers reduce the periods for implementation of the project developed by the institute "YuzhNIIgiprogaz" by 15 months. The game is worth the candle. The Deputy Minister of construction of oil and gas industry enterprises of the USSR A Vesel'yev and the Deputy Minister of the USSR gas industry S. Kashirov have a high evaluation to the efficiency of introducing the method of enlarged blocks at the Ivdel' gas compressor assembly.

At the short all-union meeting of journalists which took place in the northern Ural regions, the initiative of the Ivdel' collectives was warmly approved. Speaking before the journalists, the deputy head of Glavsreduralstroy B. Furmanov related in detail the importance of the unit-completion areas at the supplier plants. By using such technology of preliminary assembly of large assemblies and construction parts, one can greatly reduce the volume of railroad shipments, and perhaps, the demand for the rolling stock, and reduce the outlays of working forces at the actual construction site. And what is most important, one can gain time.

In Ivdel', in examining the site of the facility under construction, we saw how time was economically distributed and how the schedules were strictly kept. The people sent to the north by the Nizhniy Tagil' association "Uralsmetallurg-konstruktsiy" are the main contingent of the facility under construction. Long before the installers came to the construction site, the contractors assembled the blocks of the turbine assemblies at their own production bases and sent them to the installation site. The fittings were prepared beforehand, and a specialized brigade of mechanics, assemblers and welders. This preparation made it possible for the collective sent to Ivdel' to rapidly take up the necessary rate.

At the distant accesses to the abundant warehouses of the Urengoy gas, whose new streams will very soon be sent on powerful steel pipes to the center of the country, impressive, large-scale work is underway. It requires a lot of forces and resources. However, the energy of the "blue flame" which the central regions of the country receive from Siberia, justifies all the expenditures with interest and in short periods.

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CSO: 1822/141

## PIPELINES

### HEAD OF SOYUZINTERGAZSTROY COMMENTS ON PIPELINE PROGRESS

Yerevan KOMMUNIST in Russian 23 Mar 82 p 2

[Interview with Aleksandr Petrovich Ushakov, head of the all-union association "Soyuzintergazstroy" by A. Shkulev, correspondent of KOMMUNIST; date and place not indicated: "Kilometer after Kilometer"]

[Excerpts] It remains in the 11th Five-Year Plan to build and open the largest main gas pipelines: West Siberia-center of the country, Urengoy-Uzhgorod-West Europe.

The construction of the transcontinental gas pipelines is being carried out by the construction-installation and specialized organizations of the Ministry of Construction of Oil and Gas Industry Enterprises, included the Transcaucasus administration of pipeline construction "Soyuzintergazstroy." The correspondent of KOMMUNIST A. Shkulev asked the head of the all-union association "Soyuzintergazstroy" Aleksandr Petrovich Ushakov to discuss the intensive labor on the routes of the great construction project of the five-year plan.

When laying of the main Urengoy-Gryazovets-Podmoskov'ye was completed, it was necessary to force the construction of the lagging sections. The leadership of the Transcaucasus administration rapidly rebased the necessary equipment and people into the region of the city of Zagorsk. The Armenian gas builders understood that it was necessary to immediately assign an intensive rate. During February 1981 they welded and laid 30 kilometers of gas pipeline and at the same time made a noticeable contribution to the early opening of the trunkline.

This approach in management is the law. In the middle of last year, it developed construction-installation work on the route of the new Urengoy-Petrovsk gas pipeline. Working under the motto "100 kilometers in 100 days!" the collectives of the construction administration A. Agadzhanian, I. Kuznetsov, V. Sarkisov and S. Gevorkyan in practically 4 months laid and connected to the trunkline the Syzran' section of the gas pipeline extending 101 kilometers. In this case, the standard schedules were shortened by more than half.

The leading work experience of the Armenian gas builders was examined at the board of the USSR Ministry of Construction of Oil and Gas Industry Enterprises and was recommended for introduction in all the collectives of gas builders.

This year, the collective of the Transcaucasus administration is working on a broad front on the third Urengoy-Novopskov gas pipeline. They adopted the commitment to open the 101-kilometer section by 1 May 1982 instead of the second quarter of 1983 according to the plan. At the same time, work is continuing on the construction of the Mozdok-Kazi-Magomed gas pipeline which is also planned to open ahead of schedule, in May of this year. Its start-up will guarantee continuous and smooth supply of Siberian natural gas to the Transcaucasus republics.

The most honorable and responsible assignment has been entrusted to the Transcaucasus administration to lay the transcontinental underground artery Urengoy-Uzhgorod: to lay the near-Carpathian section of the route extending 240 kilometers. Here are two branches which are under complicated mining and geological conditions on a very intersected locality. Basic work is suggested on the near-Carpathian section of the route in May-June with their completion in the third quarter of 1983 instead of January 1984.

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## PIPELINES

### CONDITIONS FOR GAS PIPELINE CONSTRUCTION OUTLINED

Moscow STROITEL'NAYA GAZETA in Russian 5 Feb 82 p 1

[Article by G. Sudobin, deputy minister of construction of oil and gas industry enterprises: "Flow and Velocity"]

[Text] The first of the largest main gas pipelines Urengoy-Gryazovets-Moscow was opened and put onto the rated output ahead of schedule. At the second, the Urengoy-Nizhnyaya Tura-Petrovsk, all the line operations have been completed on the eve of 1982, 4 months ahead of the established schedule. It is also planned to open the Urengoy-Novopskov and export Urengoy-Uzhgorod gas pipelines ahead of schedule.

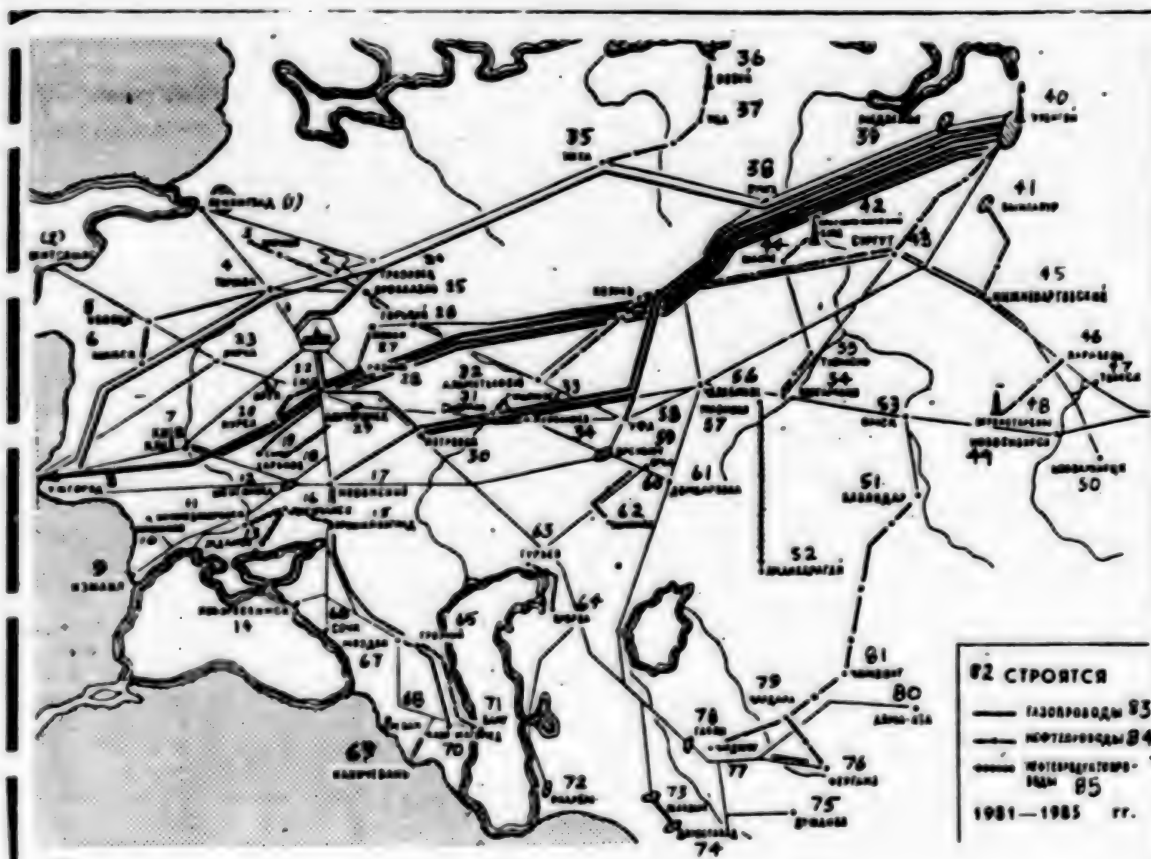
What are the peculiarities of the construction of the gas transport system in the 11th Five-Year Plan?

The length of the gas pipelines to be built of pipes 1420 mm in diameter for pressure of 75 atmospheres has doubled versus previous years. The energy potential of the gas in each of these pipelines is equivalent in output to a power plant of 15 million kilowatts. This is 2.5 Krasnoyarsk GES's. Although these trunklines currently comprise 11 percent of the length of our unified system of gas supply, they have already taken on half of the gas transport.

The question of constructing gas transport systems made of stronger and multi-layer pipes is on the agenda. This will elevate the pressure in the pipelines to 120 atmospheres and increase the gas flow in them by one-third.

The plan for the 11th Five-Year Plan stipulates the creation of conditions for guaranteed annual extraction in West Siberia of 330-370 billion m<sup>3</sup> of gas of the 600-640 billion which have to be extracted in the country by the end of the five-year plan. The selfless labor of the gas industry and construction-installation workers of our sector permitted an increase in gas extraction in only 9 months which was planned for the first year of the five-year plan.

The commitments adopted by the collectives to start up the second of the six main gas pipelines Urengoy-Nizhnyaya Tura-Petrovsk 3-4 months ahead of schedule is being successfully fulfilled. At the end of December, the completing "red joints" were welded near Nadym and Ufa, and thus the entire 2730-kilometer route was extended into a single line. After completion of tests in the near future, the gas will enter the central regions of the country.



Key:

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|---------------------|--------------------------|
| 1. Leningrad        | 24. Gryazovets           |
| 2. Ventslis         | 25. Yaroslavl'           |
| 3. Kirishi          | 26. Gor'kiy              |
| 4. Torzhok          | 27. Novki                |
| 5. Polotsk          | 28. Ryazan'              |
| 6. Minsk            | 29. Michurinsk           |
| 7. Kiev             | 30. Petrovsk             |
| 8. Uzhgorod         | 31. Syzran'              |
| 9. Izmail           | 32. Al'met'yevsk         |
| 10. Kishinev        | 33. Ul'yanovsk           |
| 11. Nizhnedneprovsk | 34. Kuybyshev            |
| 12. Shebelinka      | 35. Ukhta                |
| 13. Zhdanov         | 36. Vozey                |
| 14. Novorosiysk     | 37. Usa                  |
| 15. Voroshilovgrad  | 38. Punga                |
| 16. Lisichansk      | 39. Medvezh'ye           |
| 17. Novopskov       | 40. Urengoy              |
| 18. Khar'kov        | 41. Vyngapur             |
| 19. Sumy            | 42. Krasnoleninskiy arch |
| 20. Kursk           | 43. Surgut               |
| 21. Orel            | 44. Shaim                |
| 22. Yelesh          | 45. Nizhnevartovskiy     |
| 23. Unecha          | 46. Parabel'             |

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|---------------------|---------------------------------|
| 47. Tomsk           | 71. Baku                        |
| 48. Verkhnetarskoye | 72. Okarem                      |
| 49. Novosibirsk     | 73. Shatlyk                     |
| 50. Novokuznetsk    | 74. Dauletabad                  |
| 51. Pavlodar        | 75. Dushanbe                    |
| 52. Amankaragay     | 76. Fergana                     |
| 53. Omsk            | 77. Chardzhou                   |
| 54. Yurgamysh       | 78. Gazli                       |
| 55. Tyumen'         | 79. Chardara                    |
| 56. Chelyabinsk     | 80. Alma-Ata                    |
| 57. Travniki        | 81. Chimkent                    |
| 58. Ufa             | 82. Under construction          |
| 59. Orenburg        | 83. Gas pipelines               |
| 60. Orsk            | 84. Oil pipelines               |
| 61. Dombrovka       | 85. Petroleum product pipelines |
| 62. Kemkiyak        |                                 |
| 63. Gur'yev         |                                 |
| 64. Prorva          |                                 |
| 65. Groznyy         |                                 |
| 66. Sochi           |                                 |
| 67. Mozdok          |                                 |
| 68. Yerevan         |                                 |
| 69. Nakhichevan'    |                                 |
| 70. Kasi-Magomed    |                                 |

The collective of G. Agadzhanian from the Transcaucasus administration and the line of N. Volkov from the trust Kuybyshevtruboprovodstroy especially distinguished themselves. In slightly more than 100 days, they laid over 100 kilometers of pipeline each. They were one of the first to switch to working with enlarged comprehensive production lines of a high rate, and to the brigade form of organization and labor wages.

The organization of work in the leading subdivisions demonstrates that the modern production line is capable of producing the finished product, pipeline, accurately and in sequence up to 20-25 kilometers per month. The guarantee of this success is the introduction of the continuous production line based on structural parts and blocks of high plant readiness, leading methods of management organization, and a set of machines which mechanizes all the basic operations and improves their quality.

The annual volume of pipeline construction on swampy territories alone will be 3,000-4,000 kilometers, and 400-600 kilometers in the permafrost regions. The 26th CPSU Congress has indicated the need to create and introduce technology which ensures year-round operation on the swampy territories and in the permafrost regions. The Ministry of Construction of Oil and Gas Industry Enterprises has formulated a target scientific and technical program for the 11th Five-Year Plan to make a set of machines and organize high speed line construction of main pipelines under the most complicated natural and geological conditions. The scientists and designers of the sector jointly with the scientific and production organizations of the other ministries and departments have recently made highly productive domestic equipment for the

route workers. The ministry plants have already mastered the series production of over 70 types of new machines and mechanisms.

Work has already begun on the Urengoy-Uzhgorod export gas pipeline on individual sections. The pipeline is 4465 kilometers long. Pipes are being received, clearings are being made in the taiga, and temporary roads are being laid through the swamps. A number of collectives have started to weld the pipes into lengths. The grand trunkline must be finished in less than 2 years.

It has already become a tradition that during the laying of main pipelines, the oblast party committees, ispolkoms of the soviets of people's deputies, trade unions and Komsomols focus a lot of attention on these important construction projects. The route workers are given a lot of help in organizing socialist competition, cultural and general services, and material and technical supply. The principle "workers' relay race" was used to build interrelationships with the autotransport administrations of the oblasts, autonomous republics, forestry farms, aviation enterprises, and railroad administrations.

Collective efforts should be the answer to the words of Comrade L. I. Brezhnev that the central construction projects of the five-year plan, the gas trunklines West Siberia-center of the country and Urengoy-Uzhgorod, would be invariably completed on schedule.

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## PIPELINES

### GEORGIAN PUBLIC WARNED AGAINST CERTAIN ACTIVITIES NEAR PIPELINES

Tbilisi ZARYA VOSTOKA in Russian 26 Mar 82 p 4

[Article: "Attention, a Gas Trunk Pipeline!"]

[Text] The Gruztransgaz [GeSSR Gas Pipeline Administration] of the USSR Ministry of Gas Industry has informed ministries and agencies and the supervisors of organizations, enterprises, institutions and farms over whose lands high-pressure (up to 55 atmospheres) trunk gas pipelines and cable communications lines pass that the gas being transported is an explosion and fire hazard.

Any mechanical damage to the gas pipe can cause a break in the pipeline, which is usually accompanied by explosion and fire of great force and can entail substantial material harm and human victims.

In order to prevent the possibility of damage to pipelines and communications-line cable, the following must be kept in mind:

1. A protective zone--the minimal permissible distance from the gas-pipeline axis to communities, industrial enterprises, individual buildings and structures, and similar objects that have been constructed--is established along trunk gas pipeline routes in accordance with existing construction norms (SNiP [Construction Norms and Regulations] P-45-75) and the Rules for the Protection of Trunk Gas Pipelines, which have been approved by an appropriate decree of the USSR Council of Ministers.

Note: The norms indicated in SNiP P-45-75 do not extend to gas pipelines (or gas grids) in cities and communities that are assigned to the GeSSR Glavgaz [Georgian SSR Main Administration for Supplying Gas] system.

2. It is categorically prohibited to do the following in the protective zone: to erect any kind of structure; to organize collective gardens or orchards; to perform any kind of construction, erecting, blasthole-drilling, quarrying, mining or other types of operations; to do earthmoving work or soil leveling by means of bulldozers or other earthmoving machinery without special authorization of the organization that operates the pipeline; to establish cattle pens or picket lines, to store feed, ensilage or fertilizer, to stack hay or straw, to cultivate brome grass, or to erect firing ranges; to establish field camps or to permit people to congregate; to organize temporary recreation areas, tent cities, or parking places with the large-scale congregation of people, and other activities, or to lay field

roads closer than 10 meters from the gas pipeline; or to open the gates of enclosures for pipeline locking fixtures and for stations for cathodic and drainage protection.

3. It is prohibited to plant perennial agricultural crops in a 25-meter belt on either side of the gas pipeline.

4. It is categorically prohibited to cross the gas pipeline with heavy machinery and automotive transport without the arrangement of special crossing means, which are coordinated with the pipeline authorities.

5. It is required that enterprises, organizations, kolkhozes or sovkhozes coordinate with and obtain from the organization that operates the pipeline a special authorization to perform any types of operations in the gas-pipeline's protective zone that indicates the time and place that the work is to be done and the precautionary measures that will insure the safety and preservation of the pipeline, the cable lines of communication, and the structures thereat.

6. The indicated measures for protecting gas pipelines will be carried out by the forces and means of enterprises and organizations that are doing the work in accordance with the specifications issued by the organization that is operating the gas pipeline and the cable communications lines.

7. All types of work should be performed only in the presence of a responsible representative of the pipeline-operating organization.

8. Ministries, agencies, enterprises and organizations, kolkhozes and sovkhozes and individual citizens who violate the protected zone of trunk gas pipelines bear responsibility in accordance with legislation.

Comrade superintendents, foremen, the operators of bulldozers, excavators, construction equipment and farm machinery, supervisors of transport organizations and leaders of brigades that sow and harvest agricultural crops!

--Pay attention to the warning signs and stakes that indicate gas pipeline routes, and do not violate the existing Rules for the Protection of Trunk Gas Pipelines and Cable Communication Lines.

--Should a gas leak from a gas pipeline be detected, quickly report this to the LPU (line-operations administration) that services the trunk gas pipeline, at these addresses:

1. The Saguramo LPUMG [line-operations administration for gas pipelines]--Saguramo village of Mtskhetskiy Rayon (serves gas pipelines on the lands of Mtskhetskiy, Gardabanskiy, Marneul'skiy, Bolnisskiy, Sagaredzhoyskiy, Gurdzhaanskiy, Telavskiy, Akhmet'skiy, Lagodekhskiy, Tsitelt'skaroy'skiy, Kaspskiy, Goriyskiy and Karel'skiy Rayons in Yugo-Osetinskaya Autonomous Oblast).

2. The Kazbeg LPUMG--Arsha village of Kazbegskiy Rayon (serves gas pipelines in the Kazbegskiy and Dushetskiy Rayons (regions)).

3. Kutaisi LPUMG--Sarbevi village of Terzhol'skiy Rayon (serves gas pipelines on the lands of Borzhomskiy, Kashurskiy, Sachkher'skiy, Chiatur'skiy, Zestafon'skiy, Terzhol'skiy and Tskhaltub'skiy Rayons).

The production association Gruztransgaz issues specifications and coordinates on plans. The association's address is: Tbilisi, Avchal'skoye Shosse, 12, telephones 66-23-14, 66-15-06 and 66-11-89.

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## PIPELINES

### LAYING OF THIRD STRAND OF MESSOYAKHA-NORIL'SK GAS PIPELINE DESCRIBED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 10 Feb 82 p 2

[Article by S. Luzan (Noril'sk): "The Third String of the Line"]

[Text] Line workers--builders of the arctic Messoyakha-Noril'sk gas pipeline--have completed erection of the third strand. The last joints were made by welders Boris Rozanov, Vyacheslav Yeliseyev, Gennadiy Pivovarov and Nikolay Doroshenko. These lines are written about those who won the victory.

...A blizzard sweeps across the route, as if thin fingers were running over the strings. The first string gives a high pure sound. The second sounds denser, heavier. The third still jingles: it still has not been tightened. But not much time remains before the sound will be full-bodied.

The office of the SMU-2 [Construction and Installing Administration No 2] of Noril'sktruboprovodstroy [Noril'sk Pipeline Construction Trust] is on the edge of Noril'sk, beyond the copper plant, in a two-story wooden house stuck in blizzard country, directly on the road to Kayerkan. The morning's planning session is being held in the administration chief's office. Strenuous differences carry through the closed, sound-leaking door.

"Repair of the pipelayer has not been finished. We could have welded 20 lengths."

"How is the business with the butt end at the storage tank going?"

"I need the curved pieces on time. What I need is necessary!..."

These phrases are the life of the third strand of the Messoyakha-Noril'sk gas pipeline, the life before completion--before the electrode of the best welder of the best brigade of the best mechanized column places the nugget on the pass on the last length, on the "red seam."

The snow is soundly packed before the wind along the only street of the construction workers' field settlement. A young dog with a good amount of wolf in him sticks a wet nose in my sheepskin coat. Then he snorts, whirls like a top and rolls in the fresh snow, packing it down with his back.

Keep your eyes open for the blizzard, the blizzard.

The GTT all-terrain vehicle shuddered at the prospect of the road. And a notebook also weakly shuddered on the housing of the small diesel engine, which was warming up.

Yaroslav Mikhaylovich Perpeta, chief of the second mechanized column, a black-eyed young man who had become a builder here at Taymyr, in order to get things started held a dialog with the assemblers while the brigade was boarding the all-terrain vehicle:

"We have no time to wait, we have to do the 'red seam'."

Welder Meshkov, an abrupt, straightforward lad, hoots:

"You hang onto your briefcase. What are we supposed to do?"

"Never mind the briefcase. I will stick to my business. And you also should stick to yours, otherwise all of us here, taken together, are not worth anything."

Perpeta knows how to conduct a conversation sternly. But he also knows how to change the style of conversation unexpectedly: now the energetic speech of the rigger, with specific oral expressions, now the soft, cultivated speech of the construction engineer, now the occupational figures of aerobatics, which not by far are all specialists able to figure out.

Yaroslav Perpeta was born in the small village of Bolekhov of Ivano-Frankovskaya Oblast. Incidentally, the oil and gas institute that graduated him, which was located at the oblast center, was well-known for its graduates far beyond the borders of the region. Yaroslav arrived at this educational institution right after general-education school. He chose the department, "The Erection of Gas and Oil Pipelines, Gas Storage Facilities and Bulk Plants." His schoolmates used to joke: "Right away, he is making himself felt—he has been 'PERTed,' the bumpkin is streamlined." It is not for nothing that later on, on the line, the welders, who are sharp in language, named him "perpetual motion," the eternal engine. And the gist of it was, of course, not only his family name but also a reference to his work.

Incidentally, some years previously, in 1968, SMU-2 chief Gennadiy Alekseyevich Gupalo had been sent here after graduation from the same department of the Ivano-Frankovsk institute. They were very much alike, even in their fate to a certain degree.

Gupalo began building the first strand of the pipeline. Perpeta—the third. Gupalo became a most experienced specialist in a short time. Perpeta does not slow the pace in passage of the most difficult route, which is called the Taymyr Route of the gas pipeline, and quarterly plans are being overfulfilled by a third.

Welding pipelengths for the third line was started in the summer of 1977. The next year the erectors were strung out from Messoyakha to Varngeyakha, unwinding the dark string along the tundra. It will be no great exaggeration to say that Yaroslav Mikhaylovich Perpeta felt out each welded joint, each weld, with his own hands, from Kilometer 0 to Kilometer 90, to the crest of the Malaya Kheta, where the tracks of wolverines and wolves often wind along the shore. Then he was introduced into the bureau of the Komsomol's Taymyr Okrug Committee and he was elected a deputy of the okrug soviet.

Any superintendent without a collective is not a superintendent. You may be a Solomon or a most experienced engineer, but if the workers feel that you are indifferent to their interests, you can count on the work going to pieces.

Brigade leader of Mechanized Column No 2 Pavel Mikhaylovich Krashchenko is one of those on whom, from the first days of work in the new collective, Yaroslav Perpeta relied. This is completely natural. They know each other well at the route's outlets and they know that they can intuitively foretell even each other's actions. Krashchenko works easily, with jesting, even with soft humor, teasing the pride of the lads. And people whirl around with him, without a smoke break. Krashchenko has been awarded, not without reason, the Order of Labor Red Banner, and he knows how to work with today's pipeline workers. There is a foursome, or perhaps a fivesome, in Pavel Mikhaylovich's brigade who add good-natured folksy humor. Here in the brigade Perpeta suddenly, as if thawing out, even becomes loquacious. Now he stands on the pipe and, screening his face with the collar of his short sheepskin coat, slowly articulates:

"Here we shall finish the third strand....I shall not hide it from you that I want the right to win the 'red seam.' Glory? It is not a matter of glory. Like a plowed field, I would like to push aside the sod of a great work with my plow. And the lads are thinking the same thing. They also are straining for the last joint. Dima Parkhomenko, our crew foreman, Krashchenko, Kolya Bekeyev, Georgiy Gontar', Grigoriy Kaysym, Boris Rozanov....But why hide it? Yes, we are coming to the last nugget on this route...." Perpeta suddenly smiles craftily and unexpectedly concludes: "But neither is the first column of Anatoliy Ivanovich Manoshechin gulping down cabbage soup with a ball bat, they too are straining toward victory."

The wind blows about the strands of hair of his dark beard, which has broken loose from under his cap, and he stands among the foamy white snowdrifts on the third strand of the Messoyakha-Noril'sk line, and this individual will remain forever, perhaps, on the film of my memory.

...Right now, when you read these lines, Perpeta and his comrades will have already started their work of laying the fourth strand of the gas pipeline.

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## PIPELINES

### CARPATHIAN OILFIELDS PUT CASING-HEAD GAS TO WORK

Moscow IZVESTIYA in Russian 6 Mar 82 p 2

[Article by V. Vukovich (Ivano-Frankovsk): "Casing-Head Gas Put to Work"]

[Text] About 40 million cubic meters of casing-head gas, which are received incidental to the recovery of crude oil, will come this year into the West Ukraine's underground transport arterials from the new Dovbushanskoye field in the Carpathians. This is at the initiative of the Nadvornayaneftegaz collective, which was manifested during the competition in honor of the 60th anniversary of the Soviet Union's formation.

Not so long ago Ivano-Frankovsk oilfield workers celebrated a certain unusual event. Participating by means of the rotating personnel method, which was based on regular airplane flights on the Carpathia-Tyumen' route, they drilled the millionth recorded meter of penetration at the Severo-Var'yeganskoye field earlier than usual for that location, giving life to a numerous family of wells of the black gold.

But back at home the Carpathian recovery workers also continue to open the way for flowing wells. Not far from Berislav, in L'vovskaya Oblast, they have begun to produce oil at several wells, which have been named the Skhodnitskiys. Their next address will be: Dolina, Ivano-Frankovskaya Oblast. Here, at a field that was discovered in the post-war years, they continue to drill development wells. However, in not one of these places do you see wasteful flares, in which transparent casing-head fuel, which can replace gasoline for truck engines, is burned. All of the gas from the well goes straight to industrial treatment and is transported to customers.

That was how it was at Nadvornaya, Ivano-Frankovskaya Oblast, where there is also a plant for treating this byproduct of crude. But now the development of something new has been started here--the Dovbushanskoye field. It is in a mountain gorge, to which it is not possible to bring every mechanism. But the Carpathian workers were persistent. They have already opened up a road to eight flowing wells. The oil went into a collector, but there was a hitch here with the casing-head gas, because of slowness of the construction and installing operations. They were forced to flare it off. And it was quite a bit--60,000 cubic meters of gas per day.

The workers, engineers and technical specialists of the Nadvornayaneftgaz Administration did not want to be reconciled with the wasteful attitude toward underground wealth. They came to the aid of the builders and laid a 14-kilometer pipeline in a difficult locality which was designed for moving 400,000 cubic meters of gas per day. It happened that the materials were available. They had to do much difficult work to extinguish the last flare in the Carpathians. Now the entire 100 percent of the gas at Nadvornaya is used as power-engineering fuel.

This year six more wells will go into operation at the Dovbushanskoye field. In the future is the drilling of the next wells. And casing-head gas from them will go to a large-size western arterial-transport system, which will send the transparent fuel to local enterprises and for export.

We are accustomed to counting gas recovery in the billions of cubic meters. But in order that these billions will be still greater, it is necessary to save the thousands and the millions, in which the Carpathian workers have taken the initiative, having shown their zeal in regard to valuable power-engineering fuel.

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## PIPELINES

### ERECTION OF MILL FOR MAKING PIPE FOR SIBERIAN PIPELINES SUFFERS DELAYS

Moscow STROITEL'NAYA GAZETA in Russian 23 Dec 81 p 3

[Article by L. Grivko, chief of SU-118 [Construction Administration No 118] of Azovstal'konstruktsiya [Azov Trust for the Erection of Steel Structure]; I. Naryshkin, chairman of the NK [People's Control] Group of Donbassmetallurgmontazh [Trust for the Erection of Metallurgical Facilities in the Donets Coal Basin]; and Engineer A. Slovdyanik: "There Is Experience, But...."]

[Excerpts] The "3000" mill of the Plant imeni Il'ich should produce rolled metal for high-strength frost-proof pipe over which Siberian oil will flow. Measures were worked out for assimilating 24 million rubles of investment above the plan in 1981 for erecting its facilities.

However, the construction project has not been provided with people, metal structure and prefabricated reinforced concrete. Thus, 5,969 people were working at the complex in September, instead of the 7,257 planned. While the plan called for the shipment of 6,422 tons of metal structure and 4,027 cubic meters of prefabricated reinforced concrete during the month, 5,738 tons and 2,115 cubic meters, respectively, were shipped. Moreover, trusts from Donetskiyazhstroy [Combine for the Construction of Heavy-Industry Enterprises in Donetsk], Voroshilovgradkhimstroy [Combine for the Construction of Chemical-Industry Facilities in Voroshilovgrad] and Krivbassstroy [Krivoy Rog Iron-Ore Basin Construction Combine] have not provided the installing organizations with work fronts. The same is true also for the complex's prime contractor, Zhdanovstroy [Zhdanov Construction Combine] and its subcontracting organizations.

The lag in assimilating funds since the start of the year has amounted to 12 million rubles, including 3,499,000 rubles in September. Carrying out the state plan at the "3000" mill's complex that month did not exceed 60 percent. The work went on at half strength.

Not only were the builders and installers at fault, but also the client. Until now he still has not cleared the area of slag heaps, which interfere with both the builders and the installers. And 1.5 million tons of slag have been piled up. Sites for the gas-pipeline entry tunnel, the railroad tracks and the road have not been turned over for the laying of foundations. The UKS [Capital Construction Administration] of the Plant imeni Il'ich has not supplied electrical equipment completely for the contact system for the streetcar line that will run from Mirnyy settlement to Ukraina village, and it has not delivered the bridge cranes.

Zhdanovmetallurgstroy Trust (the manager is G. Romanchuk) and Azovstal'sstroy (P. Gubarev) have not fulfilled the plan to lay footings for the erection of industrial electrical-wiring posts. Under a plan for 250 posts, only 111 have been turned over to Azovstal'konstruktsiya and Donbassmetallurgmontazh installers. As a result, pipelines for the water and steam mains that will go to the motor pool have not been assembled and they have not been insulated.

In our view, they are reacting poorly at the "3000" mill complex to tardiness in fulfilling tasks, and so the deadlines for completing the work have been moved back several times. Thus, Azovstal'sstroy Trust turned over the footings for the V-D span for the erection of metal structure for the BK-1000 crane during the first half of the year, when the work should have been done in 1½ months.

The socialist competition results are being summed up monthly at the complex and the best trust, administration, section and brigade are determined. However, competition among brigades within a section, administration or trust is not being checked by anyone. It would seem that the staffs should be more exacting with organization supervisors about socialist competition that has been agreed to within the section, administration and trust.

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## PIPELINES

### CONDITION OF GAS PUMPING STATION CONSTRUCTION REPORTED

Moscow STROITEL'NAYA GAZETA in Russian 14 Feb 82 p 2

[Article by S. Ryabov, head of the section of the newspaper URAL'SKIY RABOCHIY: "The Northernmost"]

[Text] The line work has been completed on the Urengoy-Petrovsk gas pipeline which today is preparing for start-up. But after its opening, work will not stop at the route. In order to increase the throughput, new gas pumping stations are being built. Four of them are on the territory of the Sverdlovskaya Oblast.

Pelym is the northernmost point of the Central Urals. It is precisely here that in May of this year the gas compressor station will open. Frost burns the face, but the installers are fast workers.

"In a few days we will finish assembly of the building framework for five turbine units," says the chief engineer of the trust Komsomol'sktruboprovodstroy, Yu. Fedorov. But the rates do not suit us."

"One of the primary tasks of the Pelym gas compressor station (GCS)," he relates, "is to supply heat to the construction site. According to the plan, it should be produced through the operation of the turbine units, but they are far from being ready. At the same time, without heat it is impossible to inspect the incoming equipment."

Materials and equipment come for construction of the station on the railroad, but there are no unloading platforms. It is necessary to prepare a railroad siding. This matter is being delayed by the administration of the Sverdlovsk railroad.

The collective from the trust Uralneftegazstroy is building the Lyalya compressor station. Directly speaking, this situation is poor. You will recall that last summer, the deputy director of Glavvostoktruboprovodstroy, Ye. Lavrent'yev at the out-of-town meeting of the office of the Sverdlovsk party obkom assured the construction participants that measures would be taken that would permit work to be done in accordance with the schedule. They have not been taken.

The third gas compressor station which is being built in the central Urals is the Krasnoturinskiy. The collective of the general contracting trust of Uralenergostroy is working smoothly. Competition has been extensively unfolded among the workers for a worthy meeting of the 60th anniversary of formation of the USSR. Work is going in strict accordance with the schedule.

Of the four central Ural gas compressor stations, the Ivdel' should be the first to open. It is being erected by the collectives of the subdivisions of the Glavsreduralstroy and the trust Uralmetallurgmontazh. The general contracting trust of Boksitroy and the installers have done a lot to improve the technology of construction. The majority of foundations and buildings are made in the assembled variant. Platforms have been made for enlarged assembly of equipment and a section of low mechanization. There is a laboratory to monitor the quality of the seam welding. Work is underway with an advance of the schedule, although it is very intensive. It is planned to erect the station twice as fast as stipulated by the standards. It should be started up in April.

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## GENERAL

### SHEVCHENKO BREEDER REACTOR PROVIDES SOURCE OF FRESH WATER IN KAZAKHSTAN

Alma-Ata SOTSIALISTIK QAZAQSTAN in Kazakh 5 Jan 82 p 2

[Article by S. Bayzhanov, Z. Saqiev and S. Khaydarov: "Seagull City"]

[Excerpts] Open sea lies on one side of Shevchenko which is situated on an arm of the Caspian on the Manghyshalak Peninsula. It is interesting that there is not a single river anywhere on the peninsula. Regions such as this, totally without rivers, are rare in the world. Nature, which has hidden riches deep in the recesses of the earth, is not concerned to the slightest degree with what happens on the surface. Tales of the aboriginal population of wells sunk marvelously deep into the earth probably reflect the shortage of water. Each liter of sour Caspian water contains 13.5 grams of salt (in general the amount of salt per liter of drinking water cannot exceed 0.8-1 gram) because the sea has collected the alkaloids and poisons of the eroding desert for centuries. What is more unfortunate than a nearby sea without a drop of available fresh water. Fresh water is needed for life.

After the discovery of reserves of oil and gas and other natural resources on the peninsula, and after large numbers of people came there to exploit them, the problem of providing fresh water became a matter of major concern for specialists. It was impossible to provide the region with enough water by bringing it across the Caspian in tankers from Baku and Makhachkala. The specialists poured over their maps day and night and sometimes looked at the Edil, other times considered the Ural river and even considered the possibility of construction of a pipeline from the Amu-darya. Wherever they looked, it was sand dunes, sun-baked steppe, vast desert and barren plains. What would be the ecological and economic aspects of any solution? Would it be more profitable to distill ocean water?

In the end, the specialists decided to build an experimental industrial condenser to distill water. Starting in October 1963, the condenser was heated from furnaces burning fuel oil. Since the basic technology involves boiling water, people nicknamed the condenser "samovar." In fact, viewed from a distance, the condenser did superficially resemble a giant samovar.

The first four-unit condenser capable of producing 5,000 cubic meters of distillate (pure, filtered water) every 24 hours was put into operation at that time. Four years later a new five-unit production condenser capable of

producing 15,000 cubic meters of distillate in a 24-hour period was added. Additional distillation units were added later when this was judged possible to make full use of condenser capacity.

What has now settled the fate of the distilling condensers once and for all is atomic energy. In late 1972 the entire world learned that construction of the first industrial atomic power station in the world had been completed on the Manghyshlak Peninsula and that in November of that year a 350 megawatt capacity BH-350 fast neutron reactor had gone on line. On 16 November 1973 water distillation condensers powered by atomic power went to work.

The Caspian salt water that quickly became steam after being boiled at high temperatures by atomic power passed from the water turbogenerators to the steam generator, from piece of equipment to piece of equipment in a set technical sequence, from plant section to plant section. It runs through the system of pipes of the condenser; it is precipitated, filtered, freed of salt and made into fresh water, pure as mineral water, that is, into distillate. The engineers, chemists and physicists of Shevchenko have thus solved the peninsula's fresh water problem.

The condenser is now producing 80-82,000 tons of distillate every 24 hours, that is 440-450 liters of fresh water per city inhabitant every 24 hours. This is a level unattained by many large European cities. In Paris, for example, each inhabitant uses 330 liters of water a day. The atomic condensers of Shevchenko also water the woods and squares in the streets, gardens, boulevards and city parks and produce industrial water for production needs.

This cheap and efficient method for distilling sea water on such a broad industrial basis with atomic power is a complete innovation and is an amazing achievement of the age of scientific and technological revolution.

If you want to see real wonders, get on a helicopter and see the slopes of the Manghystau with your own eyes. You will see astonishingly unique scenes. Also look at Shevchenko from a ship in the Caspian. See buildings competing with one another in beauty and the white houses that look like newly sheared wool and the white and grey seagulls in flight above the expanse of the city.

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